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L'Autore che invia un lavoro per la pubblicazione sul Bollettino Malacologico automaticamente dà il consenso per il trattamento dei propri dati sensibili.

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La prima pagina del manoscritto riporta il titolo, il nome e l'indirizzo dell'autore/i, completo di indirizzo elettronico. In caso di lavoro svolto da più autori è necessario indicare l'autore corrispondente, con cui il Direttore Scientifico manterrà i contatti. Il titolo deve essere informativo, ma il più possibile breve, scritto in minuscolo, grassetto. Vanno evitate abbreviazioni. I nomi di rango sistematico elevato vanno riportati tra parentesi. La seconda pagina contiene un riassunto nella stessa lingua del testo principale. Per i manoscritti in lingua diversa dall'Inglese, occorre un *abstract* più esteso del riassunto. I riassunti devono riportare, in sintesi, i principali risultati del lavoro e le conclusioni, non semplicemente gli scopi o frasi generiche. I caratteri distintivi dei nuovi taxa possono essere brevemente riportati, ma non descrizioni o diagnosi estese. Si evitino riferimenti bibliografici. Dopo i riassunti, va riportato un elenco di parole chiave (non più di sei), nella stessa lingua del testo principale. Il testo principale del manoscritto va organizzato in parti distinte, tipicamente le seguenti: Introduzione, Materiale e metodi, Risultati, Discussione, Conclusioni, Ringraziamenti, Bibliografia, in minuscolo, grassetto. In lavori di tipo tassonomico, la parte relativa alla sistematica va intitolata Sistematica (in genere sostituisce Risultati). Titoli di secondo ordine, quali Descrizione, Materiale esaminato, Osservazioni, ecc. sono scritti in testo normale, minuscolo. Si evitino le note a pie' di pagina. Gli Autori sono tenuti ad adottare uno stile chiaro e conciso, evitando frasi eccessivamente lunghe. È vietato l'uso di termini offensivi o discriminatori. Tutte le abbreviazioni e gli acronimi usati nel testo devono essere spiegati, possibilmente in Materiale e metodi. Si usino le abbreviazioni formalizzate per le unità di misura (es.: "m", non "mt." per metro) e gli acronimi ufficiali per le istituzioni. Solo i nomi di generi, sottogeneri, specie e sottospecie vanno scritti in corsivo, non quelli dei taxa di rango più elevato. Alla loro prima citazione, i nomi delle specie e quelli dei generi devono comprendere il nome dell'autore e l'anno di pubblicazione. È possibile abbreviare i nomi dei generi, facendo attenzione a che non si crei confusione con generi diversi citati nel testo con la stessa iniziale. Il corsivo va usato anche per riportare citazioni nella lingua originale (tra virgolette), se diversa da quella del manoscritto. I nuovi taxa devono essere citati per la prima volta quando vengono descritti, ad eccezione del riassunto. Il Latino può essere usato per indicare il livelli tassonomici (es.: Famiglia o Famiglia). Le diagnosi (facoltative) e le descrizioni vanno redatte in stile telegrafico, quando possibile. L'elenco dei sinonimi dovrebbe comprendere solo i riferimenti principali, utili a garantire l'identità della specie trattata (per es.: quelli relativi a materiale esaminato dall'Autore o riferimenti ben documentati in letteratura).

Esempio di gerarchia sistematica e sinonimia:
Family Cardiidae Lamarck, 1809
Subfamily Cardiinae Lamarck, 1809
Genus *Acanthocardia* Gray, 1853
(type species *Cardium aculeatum* Linné, 1758)

Cardium indicum Lamarck, 1819
(Fig. 1. A-D, Fig. 2. C)

Cardium hians Brocchi, 1814: p. 508, tav. 13, fig. 6 (non Spengler, 1799).
Cardium indicum Lamarck, 1819: p. 4.
Cardium (Cardium) indicum Lamarck – Fischer-Piette, 1977: p. 112, tav. 10, fig. 4 (tipo).

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titoli vanno tradotti in Inglese, aggiungendo una nota che indichi la lingua originale, come per esempio "[in Russo]". È importante eseguire un attento controllo incrociato fra citazioni bibliografiche nel testo ed elenco bibliografico, prima di sottoporre il manoscritto.

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... come noto in letteratura (Ross et al., 1993; Rosenberg, 1995, 1997; Michelini & Andriani, 2000)
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Esempi di bibliografia:
SALAS C., 1996. Marine Bivalves from off the Southern Iberian Peninsula collected by the Balgim and Fauna 1 expeditions. *Haliotis*, **25**: 33-100.
GRILL B. & ZUSCHIN M., 2001. Modern shallow- to deep-water bivalve death assemblages in the Red Sea – ecology and biogeography. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **168**: 75-96.
BOSS K.J., 1982. Mollusca, in Parker S.P. (ed.), *Synopsis and Classification of Living Organisms*. Vol. 1. McGraw-Hill, New York: 945-1166.
CARTER J.G., CAMPBELL D.C. & CAMPBELL M.R. 2000. Cladistic perspectives on early bivalve evolution, in Harper E.M., Taylor J.D. & Crame J.A. (eds), *The Evolutionary Biology of the Bivalvia*. Geological Society, London, Special Publications, **177**: 47-95.
VOKES H.E., 1980. *Genera of the Bivalvia: a systematic and bibliographic catalogue (revised and update)*. Paleontological Research Institution, Ithaca, Edwards Brothers Inc., 307 pp.

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- (Gastropoda Pulmonata): morphology, taxonomy, and a catalogue of taxa. *Ruthenica*, **23** (2): 127–162.
- SCHMIDT A., 1868. *System der Europäischen Clausilien und Ihrer Nächsten Verwandten*. Th. Fischer, Cassel, [1-2], 176 pp.
- SOWERBY G.B., 1877. Description of six new species of shells from the Collection of the Marchioness Paulucci and Dr. Prevost. *Proceeding of the Scientific Meetings of the Zoological Society of London*. 1876: 752–755, pl. 75 fig. 3.
- SPADINI V., 2002. Lo status e le relazioni sistematiche di *Murex veranyi* Paulucci, 1866 (Gastropoda, Caenogastropoda, Muricidae), in Manganelli G. & Cianfanelli S. (eds), 4° Congresso della Società Italiana di Malacologia. Giornata di studi su Marianna Paulucci naturalista. Firenze 1-4 ottobre 1998. *Lavori della Società Italiana di Malacologia*, **25**: 13–30.
- STRAUCH F., 1977. Die Entwicklung der europäischen Vertreter der gattung *Carychium* O.F. Müller seit dem Miozän (Mollusca, Basommatophora). *Archiv für Molluskenkunde*, **107**: 149.
- SUBAI P., 1980. Revision der lebenden Arten der Gattung *Poiretia* (Gastropoda: Oleacinidae). - *Archiv für Molluskenkunde*, **110** (4-6): 151–172, pls 11–11a.
- TAPPARONE CANEFRI C., 1877. Intorno ad alcune specie di testacei marini mal conosciute o nuove dell'Isola Maurizio. *Bullettino della Società Malacologica Italiana*, **2** (3): 241–244.
- TAPPARONE CANEFRI C., 1879. Museum Pauluccianum. Études malacologiques, I. *Journal de Conchyliologie*, **27** (3^e Série, 19) (4): 316–327.
- TAPPARONE CANEFRI C., 1882. Museum Pauluccianum. Études malacologiques, II. *Journal de Conchyliologie*, **30** (3^e Série, 22) (1): 22–37, pl. 2.
- TAYLOR J.W., 1914. *Monograph of the land and freshwater Mollusca of the British Isles, Zonitidae, Endodontidae, Helicidae*, Taylor brother, Leeds, 524 pp.
- THIELENS A., 1874. *Voyage en Italie mai-juin 1874. Description de la collection de la Marquise Paulucci, à Novoli près Florence*, P.-J. Stevens, Tirlemont, 80 pp.
- WAGNER A., 1928. Studien zur Molluskenfauna der Balkanhalbinsel mit besonderer Berücksichtigung Bulgariens und Thraziens, nebst monographischer Bearbeitung einzelner Gruppen. *Prace Zoologiczne Polskiego Państwowego Muzeum Przyrodniczego [Annales Zoologici Musei Polonici Historiae Naturalis]*, **6** (4): 263–399, pls 10–23.
- WEIGAND A.M., GÖTZE M.C. & JOCHUM A., 2012. Outdated but established?! Conchologically driven species delineations in microgasteropods (Carychiidae, *Carychium*). *Organisms Diversity Evolution*: 377–386. doi:10.1007/s13127-011-0070-2
- WELTER-SCHULTES F.W., 2012. *European non-marine molluscs, a guide for species identification*. Planet Poster, Göttingen: A1-A3 + 679 + Q1-Q78 pp.
- WELTER-SCHULTES F.W., 2013. *Species summary for Cochlostoma montanum*. www.animalbase.uni-goettingen.de (version 26-10-2013).
- WELTER-SCHULTES F.W. & AUDIBERT C., 2013. Under construction: molluscan names and their authorships. *Folia Conchyliologica*, **22**: 3–32.
- WESTERLUND C.A., 1886. *Fauna der in der paläarktischen Region (Europa, Kaukasien, Sibirien, Turan, Persien, Kurdistan, Armenien, Mesopotamien, Kleinasien, Syrien, Arabien, Egypten, Tripolis, Tunesien, Algerien und Marocco) lebenden Binnenconchylien*. VI. Fam. Ampullaridae, Paludinidae, Hydrobiidae, Melanidae, Valvatidae & Neritidae. Håkan Ohlsson, Lund: 156 + 13 pp.
- WESTERLUND C.A., 1892. Spicilegium malacologicum. Neue Binnen-Conchylien in der paläarktischen Region. III. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, **24** (11-12): 185–201.
- ZILCH A., 1958. Die Typen und Typoide des Natur-Museums Senckenberg, 21: Mollusca, Cyclophoridae, Craspedopominae-Coclostominae. *Archiv für Molluskenkunde*, **87**: 53–76.
- ZILCH A., 1966. Berichtigungen zum Handbuch der Paläozoologie Band 6 Gastropoda, Teil 2 Euthyneura. *Archiv für Molluskenkunde*, **95**: 287–291.
- ZIMMERMANN F., 1925. Untersuchungen über die Variabilität einiger Arten des Genus *Carychium* Müller. *Zeitschrift für Induktive Abstammungs- und Vererbungslehre*, **37**: 291–342, pls 4–5.

- PAULUCCI M., 1866. Description d'un *Murex* fossile du terrain tertiaire subappennin de la vallée de l'Elsa (Toscane). *Journal de Conchyliologie*, **14** (3^e Série, 6) (1): 64–67, pl. 2 fig. 1, pl. 3 fig. 1.
- PAULUCCI M., 1878a. *Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles*. Savy, Paris: iv + 54 pp.
- PAULUCCI M., 1878b. Remarques sur quelques espèces d'*Helix* de la collection Férussac, appartenant à la faune italienne. *Journal de Conchyliologie* **26** (3^e Série, 18) (3): 247–250.
- PAULUCCI M., 1878c. Diagnosen neuer italienischen Arten. *Jahrbücher der Deutschen Malakozoologischen Gesellschaft*, **5**: 355–359.
- PAULUCCI M., 1879a. Etude critique sur l'*Hyalina* de la Sardaigne et description d'une nouvelle espèce. *Journal de Conchyliologie*, **27** (3^e Série, 19): 15–21.
- PAULUCCI M., 1879b. L'esposizione universale del 1878 considerata dal lato conchiologico. Ricordi di M. Paulucci. *Bullettino della Società Malacologica Italiana*, **5** (1-3): 5–10.
- PAULUCCI M., 1879c. Fauna Italiana. Comunicazioni malacologiche. Articolo secondo. Descrizione di alcune nuove specie del genere *Pomatias*. *Bullettino della Società Malacologica Italiana*, **5** (1-3): 13–21.
- PAULUCCI M., 1879d. A Monsieur le Redacteur des Jahrbücher der Deutschen Malakozoologischen Gesellschaft Dr. W. Koebel. *Jahrbücher der Deutschen Malakozoologischen Gesellschaft*, **68**: 64–67.
- PAULUCCI M., 1880a. Replica alle osservazioni critiche dei signori Pini, De Stefani e Tiberi sopra alcune recenti pubblicazioni malacologiche. *Bullettino della Società Malacologica Italiana*, **5** (11-15): 164–200.
- PAULUCCI M., 1880b. *Escursione scientifica nella Calabria 1877-78. Fauna malacologica. Specie terrestri e fluviali enumerate e descritte da M. Paulucci con tavole illustrative*. Tipi dell'Arte della Stampa, Firenze: xix + 223 pp, pls 1–9.
- PAULUCCI M., 1880c. *Molluschi fluviali italiani inviati come saggio alla Esposizione internazionale della Pesca in Berlino. Esposizione internazionale di Pesca in Berlino 1880. Sezione Italiana*. Catalogo degli espositori e delle cose esposte. Stamperia Reale, Firenze: 189–209.
- PAULUCCI M., 1880d. *Neue Arten Conchylien von Frau Marianna Paulucci in Florenz*, in Internationale Fischerei-Ausstellung, 1880 in Berlin. Italienischen special Catalog. Buchdruckerei von Meech and Lichtenfeld, Berlin: 71–72.
- PAULUCCI M., 1880e. Fauna Italiana. Comunicazioni malacologiche. Articolo quinto. Rivista delle specie appartenenti ai generi *Sphaerium* Scopoli, *Calyculina* Clessin, *Pisidium* Pfeiffer e loro distribuzione geografica. *Bullettino della Società Malacologica Italiana*, **6** (5-10): 159–160; (11-14): 161–181.
- PAULUCCI M., 1881a. Fauna Italiana. Comunicazioni malacologiche. Articolo sesto. Studio sulla *Helix* (*Campylaea*) *cingulata*, Studer e forme affini. *Bullettino della Società Malacologica Italiana*, **7** (1-4): 5–55, pls 1–2.
- PAULUCCI M., 1881b. Contribuzione alla fauna malacologica italiana. Specie raccolte dal Dr G. Cavanna negli anni 1878, 1879, 1880. Con elenco delle conchiglie abruzzesi e descrizione di due nuove *Succinea*. *Bullettino della Società Malacologica Italiana*, **7** (5-12): 69–180, pls 1 bis-5.
- PAULUCCI M., 1882a. Fauna Italiana. Comunicazioni malacologiche. Articolo settimo. Descrizione di una nuova specie del genere *Acme*. *Bullettino della Società Malacologica Italiana*, **7** (13-19): 221–225.
- PAULUCCI M., 1882b. Note malacologiche sulla fauna terrestre e fluviale dell'isola di Sardegna. *Bullettino della Società Malacologica Italiana*, **8** (7-16): 139–256; (17-24): 257–381, pls 1–9.
- PAULUCCI M., 1886. Fauna Italiana. Comunicazioni malacologiche. Articolo nono. Conchiglie terrestri e d'acqua dolce del Monte Argentario e delle isole circostanti. *Bullettino della Società Malacologica Italiana*, **12** (1-4): 5–64, pls 1–2.
- PFEIFFER L., 1859. *Monographia heliceorum viventium. Sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum*. Brockhaus, Lipsiae: Vol. 4, ix + 920 pp.
- PHILIPPI R.A., 1836. *Enumeratio molluscorum Siciliae cum viventium tum in tellure tertiaria fossilium, quae in itinere suo observavit*. Berolini, Schropp: xiv + 267 pp., pls 1–12.
- PIENKOWSKA J.R., MANGANELLI G., GIUSTI F., BARBATO D., HALLGASS A. & LESICKI A., 2019. Exploration of phylogeography of *Monacha cantiana* s.l. continues: the populations of the Apuan Alps (NW Tuscany, Italy) (Eupulmonata, Stylommatophora, Hygromiidae). *ZooKeys*, **814**: 115–149.
- PIENKOWSKA J.R., MANGANELLI G., GIUSTI F., HALLGASS A. & LESICKI A., 2018. Exploring *Monacha cantiana* (Montagu, 1803) phylogeography: cryptic lineages and new insights into the origin of the English populations (Eupulmonata, Stylommatophora, Hygromiidae). *Zookeys*, **765**: 1–41.
- PINTÉR L., 1972. Die Gattung *Vitrea* Fitzinger, 1833 in den Balkanländern (Gastropoda: Zonitidae). *Annales Zoologici*, **29** (8): 209–315, pls 1–10.
- RADOMAN P., 1966. Die Gattungen *Pseudamnicola* und *Horatia*. *Archiv für Molluskenkunde*, **95** (5-6): 243–253.
- RADOMAN P., 1983. Hydrobioidea a superfamily of Prosobranchia. I. Systematics. *Monographs of the Department of Science of the Serbian Academy of Sciences and Arts*, **57**, 1–256.
- REIER S., HARING E. & DE MATTIA W., 2019. Integrative taxonomy of the genus *Siciliaria* Vest, 1867 from northwestern Sicily with insights into related genera. 1st Meeting of the Mollusc Research Society Austria (MoFA) in Salzburg, June 26 – 27, 2019. Abstracts. *Arianta*, **7**: 12.
- REITANO A., LIBERTO F., GIGLIO S., GRASSO R. & SPENA M.T., 2013. Terrestrial molluscs from the R.N.I. "Grotta Conza" (Palermo, Sicily) (Gastropoda Architaenioglossa Pulmonata). *Biodiversity Journal*, **3** (4): 555–570.
- RENDÁ W., BODON M. & NARDI G., 2011. On the specific validity of *Rupestrella jaeckeli* (Gastropoda, Pulmonata, Chondrinidae). *Biodiversity Journal*, **2** (4): 213–216.
- RIEDEL A., 1972. Die Untergattung *Schistophallus* A. J. Wagner in Europa und Kleinasien (Gastropoda, Zonitidae). *Malakologische Abhandlungen*, **29**: 181–207.
- RIEDEL A., 1980. *Genera Zonitidarum*. Diagnosen supraspezifischer Taxa der Familie Zonitidae (Gastropoda, Stylommatophora). Backhuys, Rotterdam: 197 pp., 2 pls.
- RIEDEL A., 1983. Über die *Aegopinella*-Arten (Gastropoda: Zonitidae) aus Jugoslawien, Italien und Frankreich. *Annales Zoologici*, **37** (5): 235–258, pls 1–2.
- ROSSMÄSSLER E.A., 1854-1859. *Iconographie der Land- und Süßwassermollusken Europa's, mit vorzüglicher Berücksichtigung kritischer und noch nicht abgebildeter Arten*. 3 Band. H. Costenoble, Leipzig, Heft 13/14: i-viii, 1–39, Heft 15/16: i-viii, 41–77, [1], Heft 17/18: i-viii, 81–140, pls 61–90.
- SACCHI C.F. & GIROD A., 1968. I molluschi d'acqua dolce di alcune stazioni presso Terracina. Ricerche ecologiche e faunistiche. *Bollettino di Pesca, Piscicoltura e Idrobiologia*, **23** (1): 5–32.
- SALINAS E., 1907a. Miscellanea. Stazione preistorica all'Acqua dei Corsari presso Palermo. *Archivio storico siciliano*. Boccone del Povero, Palermo, **32**: 236–270.
- SALINAS E., 1907b. Geologia. *Avanzi preistorici nel travertino dell'Acqua dei Corsari presso Palermo*. *Atti della Reale Accademia dei Lincei*, **16** (1): 111.
- SCHILEYKO A.A., 2013. Family Helicidae excluding Helicinae

- ish non-marine Mollusca (Recent and Post-Tertiary). Natural History Museum Publications, London: xxiv + 447 pp.
- KOBELT W., 1877. *Iconographie der Land- & Süßwasser-Mollusken mit vorzüglicher Berücksichtigung der europäischen noch nicht abgebildeten Arten von E. A. Rossmässler*. V. Band. Mit dreissig Tafeln. Kreidel, Wiesbaden: 3 + 129 pp., pls 121–150.
- KOBELT W., 1878. Paulucci, M., Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles. *Jahrbucher der Deutschen Malakozoologischen Gesellschaft*, 5: 284–287.
- KOBELT W., 1879. *Iconographie der Land- & Süßwasser-Mollusken mit vorzüglicher Berücksichtigung der europäischen noch nicht abgebildeten Arten von E. A. Rossmässler*. VI. Band. Mit achtundzwanzig Tafeln. Kreidel, Wiesbaden: 1 + 158 pp., pls 151–178.
- KOBELT W., 1892. *Iconographie der Land- & Süßwasser-Mollusken mit vorzüglicher Berücksichtigung der europäischen noch nicht abgebildeten Arten* (Neue Folge), 5: 118 pp., pls 121–150.
- KOBELT W., 1898. *Studien zur Zoogeographie*. II. Die Fauna der meridionalen Sub-Region. Kreidel, Wiesbaden: x + 368 pp.
- KORÁBEK O., 2011. Přehled taxonomie rodu *Helix*. Summary of the taxonomy of the genus *Helix*. 37. Univerzita Karlova v Praze, Přírodovědecká fakulta, 41 pp.
- KORÁBEK O., JURÍČKOVÁ L. & PETRUSEK A., 2015a. Splitting the Roman snail *Helix pomatia* Linnaeus, 1758 (Stylommatophora: Helicidae) into two: redescription of the forgotten *Helix thessalica* Boettger, 1886. *Journal of Molluscan Studies*: 1–12. doi:10.1093/mollus/eyv048
- KORÁBEK O., PETRUSEK A., NEUBERT E. & JURÍČKOVÁ L., 2015b. Molecular phylogeny of the genus *Helix* (Pulmonata: Helicidae). *Zoologica Scripta*, 44 (3): 263–280.
- LANDAU B., HARZHAUSER M., BÜYÜKMERİÇ Y. & BREITENBERGER A., 2016. Additions to the gastropods of the middle Miocene (Serravallian) Karaman Basin, Turkey. *Cainozoic Research*, 16 (2): 221–229.
- LESSONA M. & POLLONERA C., 1882. Monografia dei limacidi italiani. *Memorie Accademia Scienze Torino*, Serie II, 35: 49–128, pls 1–3.
- LETOURNEUX A. & BOURGUIGNAT J.-R., 1887. *Prodrome de la malacologie terrestre et fluviale de la Tunisie*, in: Exploration scientifique de la Tunisie, publiée sous les auspices du Ministère de l'Instruction Publique. Imprimerie Nationale, Paris, 166 pp.
- LIBERTO F., GIGLIO S., REITANO A. & COLOMBA M.S., 2010. *Molluschi terrestri e dulciacquicoli di Sicilia della collezione F. Minà Palumbo di Castelbuono*. Monografie Naturalistiche 2. Ed. Danaus, Palermo, 136 pp.
- LO BRANO V.D. & SPARACIO I., 2006. Molluschi terrestri e dulciacquicoli del S.I.C. Rupi di Catalfano e Capo Zafferano (Sicilia) (Gastropoda Neoteanoglossa Pomatiasidae, Basommatophora, Stylommatophora. *Il Naturalista Siciliano*, S. IV, 30 (3-4): 555–589.
- MANGANELLI G., CASTAGNOLO L. & GIUSTI F., 1990. Notulae malacologicae, XXXIX. Second contribution to the revision of the *Oxychilus*-species living in the Italian Apennine regions: *Hyalina carotii* Paulucci 1878, *Hyalina fragrans* Paulucci 1878 and *Helix erica* Benoit 1859 (Pulmonata: Zonitidae). *Archiv für Molluskenkunde*, 119 (4-6): 181–203.
- MANGANELLI G., BODON M., FAVILLI L. & GIUSTI F., 1995. Gastropoda Pulmonata, in Minelli A., Ruffo S. & La Posta S. (eds). Checklist delle specie della fauna italiana. Calderini, Bologna, 16, 60 pp.
- MANGANELLI G. & CIANFANELLI S., 2002. Marianna Paulucci naturalista, in Manganelli G. & Cianfanelli S. (eds), 4° Congresso della Società Italiana di Malacologia. Giornata di studi su Marianna Paulucci naturalista. Firenze 1-4 ottobre 1998. *Lavori della Società Italiana di Malacologia*, 25: 13–30.
- MANGANELLI G., CIANFANELLI S. & TALENTI E., 2002. Il contributo di Marianna Paulucci alla conoscenza della malacofauna italiana, in Manganelli G. & Cianfanelli S. (eds), 4° Congresso della Società Italiana di Malacologia. Giornata di studi su Marianna Paulucci naturalista. Firenze 1-4 ottobre 1998. *Lavori della Società Italiana di Malacologia*, 25: 13–30.
- MANGANELLI G., LORI E. & CIANFANELLI S., 2009. Eponyms honouring Marianna Paulucci (1835-1919) *Archives of natural history*, 36 (1): 48–52.
- MOLLUSCABASE, 2020. MolluscaBase. Accessed at <http://www.molluscabase.org> on 2020-08-18.
- MONTEROSATO A., 1884. *Nomenclatura generica e specifica di alcune conchiglie mediterranee*. Stabilimento Tipografico Virzi, Palermo, 152 pp.
- NEUBERT E., SEDDON M.B., ALLEN D.J., ARRÉBOLA J., BACKELJAU T., BALASHOV I., BANK R., CAMERON R., DE FRIAS MARTINS A.M., DE MATTIA W., DEDOV I., DUDA M., FALKNER G., FALKNER M., FEHÉR Z., GARGOMINY O., GEORGIEV D., GIUSTI F., GÓMEZ MOLINER B.J., GROH K., IBÁÑEZ M., KAPPES H., MANGANELLI G., MARTÍNEZ ORTÍ, A., NARDI G., NEIBER M.T., PÁLL-GERGELY B., PARMAKELIS A., PRIÉ V., REISCHÜTZ A., REISCHÜTZ P.L., ROWSON B., RÜETSCHI J., SLAPNIK R., SON M., ŠTAMOL V., TEIXEIRA D., TRIANTIS K., VARDINOYANNIS K., VON PROSCHWITZ T. & WALTHER F., 2019. *European Red List of terrestrial molluscs*. IUCN: Cambridge, UK and Brussels, Belgium. <https://portals.iucn.org/library/node/48439>
- NEUBERT E., 2014. Revision of *Helix* Linnaeus, 1758 in its eastern Mediterranean distribution area, and reassignment of *Helix godetiana* Kobelt, 1878 to *Maltzanella* Hesse, 1917 (Gastropoda, Pulmonata, Helicidae). *Contributions to Natural History*, 26: 1–200.
- NORDSIECK H., 2002. Contributions to the knowledge of the Delimini (Gastropoda: Stylommatophora: Clausiliidae). *Mitteilungen der deutschen malakozoologischen Gesellschaft*, 67: 27–39.
- NORDSIECK H., 2007. *Worldwide Door Snails (Clausiliidae), recent and fossil*, Conchbooks, Hackenheim, 214 pp., 20 pls.
- NORDSIECK H., 2011a. Beschreibung einer neuen *Cochlostoma*-Art aus Italien, mit revisorischen Bemerkungen zu den *Cochlostoma*-Arten der Apenninen-Halbinsel (Gastropoda, Caenogastropoda, Architaenioglossa, Cochlostomatidae). *Club Conchylia Informationen*, 41 (3-4): 13–21.
- NORDSIECK H., 2011b. *Papillifera bidens* (Linné 1758) (Clausiliidae, Aloiinae), a common, but little known species. <http://www.hnords.de/5356429ec81312c0d/5356429ec812fae01/index.html> (last access: August 29th 2020).
- NORDSIECK H., 2011c. Revision of the genus *Leucostigma* A. J. Wagner 1919 (Gastropoda: Stylommatophora: Clausiliidae) *Archiv für Molluskenkunde*, 140 (1): 123–147. DOI: 10.1127/arch.moll/1869-0963/140/123-147
- NORDSIECK H., 2011d. Murellen von Mittel- und Süditalien (Gastropoda, Stylommatophora, Helicidae) bestimmen, eine schwierige Aufgabe. *Club Conchylia Information*, 41 (3-4): 22–32, pls 1–23.
- NORDSIECK H., 2013a. *Revisory remarks on the species of Sicily Vest from N. W. Sicily*. Available at: <http://www.hnords.de/5356429d6b11adc0b/535642a1dc1365e05/> (last access: August 29th 2020).
- NORDSIECK H., 2013b. Delimini from Apennine Italy, with the description of three new subspecies from Calabria. *Conchylia*, 44 (1-2): 3–14.
- OLIVERIO M., DE MATTHAEIS E. & HALLGASS A., 1992. Genetic divergence between Italian populations of *Marmorana* (*Ambigua*) (Gastropoda, Pulmonata, Helicidae). *Atti Congresso Parma, Lavori S.I.M.*, 24: 225–248.

- terrestres et fluviatiles, tant des espèces que l'on trouve aujourd'hui vivantes, que des dépouilles fossiles de celles qui n'existent plus; classés d'après les caractères essentiels que présentent ces animaux et leurs coquilles. Atlas. Tome premier. Baillière, Paris: pp. [1-3], 1-22, pls 1-69, 69A-69K.
- FIorentino V., MANGANELLI G., GIUSTI F., TIEDEMANN R. & KETMAIER V., 2012. A question of time: the land snail *Murela muralis* (Gastropoda: Pulmonata) reveals constraints on past ecological speciation. *Molecular Ecology*, **22** (1): 170-86. doi: 10.1111/mec.12107
- FIorentino V., MANGANELLI G. & GIUSTI F., 2008a. Multiple scale patterns of shell and anatomy variability in land snails: the case of the Sicilian *Marmorana* (Gastropoda: Pulmonata, Helicidae). *Biological Journal of the Linnean Society*, **93**: 359-370.
- FIorentino V., MANGANELLI G., GIUSTI F. & KETMAIER V., 2016. Recent expansion and relic survival: phylogeography of the land snail genus *Helix* (Mollusca, Gastropoda) from south to north Europe. *Molecular Phylogenetics and Evolution*, **98**: 358-372.
- FIorentino V., SALOMONE N., MANGANELLI G. & GIUSTI F., 2008b. Phylogeography and morphological variability in land snails: the Sicilian *Marmorana* (Pulmonata, Helicidae). *Biological Journal of the Linnean Society*, **94**: 809-823.
- FIorentino V., SALOMONE N., MANGANELLI G. & GIUSTI F., 2009. Historical biogeography of Tyrrhenian land snails: the *Marmorana-Tyrrheniberus* radiation (Pulmonata, Helicidae). *Molecular Phylogenetics and Evolution*, **55**: 26-37.
- FISCHER P., 1864. Monographie des genres *Stylifer* et *Entoncha*. *Journal de Conchyliologie*, **12** (3^e série, **4**) (2): 91-105, pl. 7 fig. 3.
- FOCACCIA M., 2016. *Panciaticchi Ximenes D'Aragona, Marianna*, in Dizionario biografico degli italiani, vol. 80, Roma, Istituto dell'Enciclopedia Italiana. [http://www.treccani.it/enciclopedia/panciaticchi-ximenes-d-aragona-marianna_\(Dizionario-Biografico\)/](http://www.treccani.it/enciclopedia/panciaticchi-ximenes-d-aragona-marianna_(Dizionario-Biografico)/)
- FORCART L., 1965. Rezente Land- und Süßwassermollusken der süditalienischen Landschaften Apulien, Basilicata und Calabrien. *Verhandlungen der Naturforschenden Gesellschaft in Basel*, **76** (1): 59-184.
- GITTENBERGER E., 1991. Altitudinal variation and adaptive zones in *Arianta arbustorum*: a new look at a widespread species. *Journal of Molluscan Studies*, **57** (1): 99-109.
- GITTENBERGER E., PIEL W.H. & GROENENBERG D.S.J., 2004. The Pleistocene glaciations and the evolutionary history of the polytypic snail species *Arianta arbustorum* (Gastropoda, Pulmonata, Helicidae). *Molecular Phylogenetics and Evolution*, **30** (1): 64-73.
- GIUSTI F., 1969. A malacological survey of the small Tuscan Islands. *Malacologia*, **9**: 85-91.
- GIUSTI F., 1973a. Notulae Malacologicae. XVIII. I Molluschi terrestri e salmastri delle Isole Eolie. *Lavori della Società Italiana di Biogeografia* (Nuova Serie), **3**: 113-306, pls 1-16.
- GIUSTI F., 1973b. Notulae malacologicae XVI. I molluschi terrestri e di acqua dolce viventi sul massiccio dei Monti Reatini (Appennino Centrale). *Lavori della Società Italiana di Biogeografia* (Nuova Serie), **2**: 423-574, pls 1-7.
- GIUSTI F., 1976. Notulae Malacologicae, XXIII. I molluschi terrestri, salmastri e di acqua dolce dell'Elba, Giannutri e scogli minori dell'Arcipelago Toscano. Conclusioni generali sul popolamento malacologico dell'Arcipelago toscano e descrizione di una nuova specie. (Studi sulla Riserva naturale dell'Isola di Montecristo, IV). *Lavori della Società Italiana di Biogeografia* (Nuova Serie), **5**: 99-335, pls 1-19.
- GIUSTI F., 1979. Notulae Malacologicae XXIV. 11 Genere *Mercuria* (Prosobranchia: Hydrobioidea) nell'Isola di Sardegna. (Studi sulla Malacofauna di Sardegna e Corsica, IV). *Archiv für Molluskenkunde*, **110** (1-3): 1-14.
- GIUSTI F. & MAZZINI M., 1971. Notulae Malacologicae XIV. I Molluschi delle Alpi Apuane. Elenco delle specie viventi con descrizione di una nuova specie: *Vitrinobrachium baccettii* n. sp. *Lavori della Società Italiana di Biogeografia* (Nuova Serie), **1**: 202-335, pls 1-9.
- GIUSTI F., MANGANELLI G. & SCHEMBRI P.K., 1995. *The non-marine molluscs of the Maltese Islands*. Monografie Museo regionale di Scienze naturali di Torino, **15**, 607 pp.
- GIUSTI F. & PEZZOLI E., 1980. *GASTEROPODI 2. (Gastropoda: Prosobranchia: Hydrobioidea, Pyrguloidea)*. Consiglio Nazionale delle Ricerche. Collana del Progetto Finalizzato "Promozione della Qualità dell'Ambiente" Pubblicazione AQ/1/47. Guide per il Riconoscimento delle Specie Animali delle Acque Interne Italiane, **8**: 67 pp.
- GLÖER P., 2019. *The freshwater gastropods of the West Palaearctic. Volume I Fresh- and brackish waters except spring and subterranean snails. Identification Key, Anatomy, Ecology, Distribution*. Hetlingen. Germany, 399 pp.
- GLÖER P., BOETERS H.D. & WALTHER F., 2015. Species of the Genus *Mercuria* Boeters, 1971 (Caenogastropoda: Truncatelloidea: Hydrobiidae) from the European Mediterranean Region, Morocco and Madeira, with descriptions of new species. *Folia Malacologica*, **23** (4): 279-291.
- GROENENBERG D.S.J., SUBAI P. & GITTENBERGER E., 2016. Systematics of Ariantinae (Gastropoda, Pulmonata, Helicidae), a new approach to an old problem. *Contributions to Zoology*, **85** (1): 37-65.
- HAASE M., MISOF B., WIRTH T., BAMINGER H. & BAUR B., 2003. Mitochondrial differentiation in a polymorphic land snail: evidence for Pleistocene survival within the boundaries of permafrost. *Journal of Evolutionary Biology*, **16** (3): 415-428.
- HAUSDORF, B. & WALTHER, F., 2021. A forgotten subspecies of the land snail species *Arianta arbustorum* from a Pleistocene refuge in the Western Alps. *Journal of Molluscan Studies* 87: eyab017. doi:10.1093/mollus/eyab017.
- HASZPRUNAR G., 2014. A nomenclator of extant and fossil taxa of the Valvatidae (Gastropoda, Ectobranchia). *ZooKeys*, **377**: 1-172. doi: 10.3897/zookeys.377.6032
- ILARI V., 2014. *Filippo Paulucci delle Roncole (1779-1849)*. Ed. Acies, Milano, 429 pp.
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE [ICZN], 1999. *International code on zoological nomenclature*. Adopted by the International Union of Biological Sciences The provisions of this Code supersede those of the previous editions with effect from 1 January 2000. London: The International Trust for Zoological Nomenclature: xxix + 306 pp. <https://web.archive.org/web/20090408072159/http://www.iczn.org/iczn/index.jsp>
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE [ICZN], 2015 - Opinion 2355 (Case 3581): *Turbo bidens* Linnaeus, 1758 (Mollusca, Gastropoda, Clausiliidae): request to set aside the neotype not granted, *Bulletin of Zoological Nomenclature*, **72** (2): 159-161.
- JOUSSEAUME J., 1878. Escursion malacologique à travers l'exposition de 1878. *Bulletin de la Société Zoologique de France*, **3**: 164-169.
- KABAT A.R. & HERSHLER R., 1993. The prosobranch snail family Hydrobiidae (Gastropoda: Rissooidea): review of classification and supraspecific taxa. *Smithsonian Contributions to Zoology*, **547**: iii + 94 pp.
- KADOLSKY D., 2012. Nomenclatural comments on non-marine molluscs occurring in the British Isles. *Journal of Conchology*, **41** (1): 65-90.
- KENNARD A.S. & WOODWARD B.B., 1926. *Synonymy of the Brit-*

- Congresso della Società Italiana di Malacologia. Giornata di studi su Marianna Paulucci naturalista. Firenze 1-4 ottobre 1998. *Lavori della Società Italiana di Malacologia*, **25**: 13–30.
- BARBAGLI F. & NISTRI A., 2002. Gli interessi ornitologici di Marianna Paulucci, in Manganelli G. & Cianfanelli S. (eds), 4° Congresso della Società Italiana di Malacologia. Giornata di studi su Marianna Paulucci naturalista. Firenze 1-4 ottobre 1998. *Lavori della Società Italiana di Malacologia*, **25**: 13–30.
- BARSANTI G., 2002. Di alcuni orientamenti teorici di Marianna Paulucci, in Manganelli G. & Cianfanelli S. (eds), 4° Congresso della Società Italiana di Malacologia. Giornata di studi su Marianna Paulucci naturalista. Firenze 1-4 ottobre 1998. *Lavori della Società Italiana di Malacologia*, **25**: 13–30.
- BECKMANN K.-H., 1987. Land- und Süßwassermollusken der Maltesischen Inseln. *Heldia*, **1** (1): 1–38, pls 1–5.
- BECKMANN K.-H., 1992. Catalogue and bibliography of the land- and freshwater molluscs of the Maltese Islands, the Pelagi Islands and the isle of Pantelleria. *Heldia*, **2**: 1–60.
- BECKMANN K.-H., 2002. Elemente einer Revision der endemischen Rupestrellen Siziliens, in Falkner et al., 2002. *Collectanea Malacologica*. Friedrich-Held-Gesellschaft / ConchBooks München/ Hackenheim, Germany: 49–78, pls 10–13.
- BENOIT L., 1857–1875. *Illustrazione sistematica critica iconografica de' testacei estramarini della Sicilia Ulteriore e delle isole circostanti*. Nobile, Napoli: xiv + 1–52, pls 1–2 (1857); 53–116, pls 3–4 (1857); 117–180, pls 5–6 (1859); 181–248, pls 7–8 (1862), pls 9–12 (1875).
- BENOIT L., 1876. Catalogo delle conchiglie terrestri e fluviatili della Sicilia e delle Isole circostanti. *Bullettino della Società Malacologica italiana*, **1**: 129–163.
- BENOIT L., 1882a. *Nuovo catalogo delle conchiglie terrestri e fluviatili della Sicilia o Continuazione alla illustrazione sistematica critica iconografica dei Testacei extramarini della Sicilia Ulteriore e delle isole circostanti*, D'Amico, Messina: vi + 7–176.
- BENOIT L., 1882b. *Nuovo catalogo delle conchiglie terrestri e fluviatili della Sicilia o Continuazione alla illustrazione sistematica critica iconografica dei Testacei extramarini della Sicilia Ulteriore e delle isole circostanti*. *Atti della Reale Accademia Peloritana*, **3**: 43–216.
- BIVONA BERNARDI A., 1839. Nuovi Molluschi terrestri e fluviatili dei dintorni di Palermo ritrovati e descritti. *Giornale di Scienze Lettere e Arti per la Sicilia*, **66**: 221–233, 1 pl.
- BIVONA BERNARDI A., 1840. Prima monografia di Malacologia per servire alla Fauna siciliana. *Effemeridi scientifiche e letterarie per la Sicilia*, Palermo, 1–28, 1 pl.
- BODON M., CIANFANELLI S., MANGANELLI G., PEZZOLI E. & GIUSTI F., 2005. *Gastropoda Prosobranchia ed Heterobranchia Heterostropha*, in Ruffo S., Stoch F. (eds) *Checklist e distribuzione della fauna italiana*. Memorie del Museo Civico di Storia Naturale di Verona, 2. serie, Sez. Scienze della Vita, **16**: 79–81+ CD ROM. <http://ckmap.faanaitalia.it>.
- BOETERS H.D., 1971. *Pseudamnicola* Paulucci, 1878 und *Mercuria* n. gen. (Prosobranchia, Hydrobiidae). *Archiv für Molluskenkunde*, **101** (1–4): 175–181.
- BOETERS H.D., 1974. Die Gattung *Bythinella* and die Gattung *Marstoniopsis* in Westeuropa, 1. Westeuropäische Hydrobiidae, 4. (Prosobranchia). *Malacologia*, **14**: 271–285.
- BOETERS H.D., 1999. *Alzoniella navarrensis* n. sp., *Pseudamnicola* (*Corrosella*) *hydrobiopsis* n. sp. and the type species of *Pseudamnicola* Paulucci, 1878 unknown West European Prosobranchia. *Basteria*, **63** (1–3): 77–81.
- BOETERS H.D., MONOD R. & VALA J.-C., 1977. Westeuropäische Hydrobiidae, 6. *Hydrobia* (*Semisalsa*) Radoman (Prosobranchia). *Archiv für Molluskenkunde*, **108** (1–3): 45–50.
- BOETERS H.D. & BECKMANN K.H., 1991. Wiederbeschreibung von *Paludinella* (*Pseudamnicola*) *kobelti* Westerlund 1892. *Archiv für Molluskenkunde*, **120**: 179–182.
- BOETERS H.D. & FALKNER G., 2017. The genus *Mercuria* Boeters, 1971 in France (Gastropoda: Caenogastropoda: Hydrobiidae). West-European Hydrobiidae, Part 13. *Zoosystema*, **39** (2): 227–261. <https://doi.org/10.5252/z2017n2a4>
- BOETERS H.D. & GLÖER P., 2015. Description of a new subspecies of *Pseudamnicola* Paulucci, 1878 (Caenogastropoda: Truncatelloidea: Hydrobiidae). *Folia Malacologica*, **23** (4): 293–300. www.foliamalacologica.com
- BOETTGER O., 1878. Systematisches Verzeichniss der lebenden Arten der Landschnecken-Gattung *Clausilia* Drap. mit ausführlicher Angabe der geographischen Verbreitung der einzelnen Species. *Bericht über die Thätigkeit des Offenbacher Vereins für Naturkunde*, **17–18**: 18–101.
- BOETTGER O., 1879. Gattung *Clausilia* Drap., in Kobelt W., *Iconographie der Land- & Süßwasser-Mollusken mit vorzüglicher Berücksichtigung der europäischen noch nicht abgebildeten Arten von E. A. Rossmässler*. VI. Band. mit 28 Tafeln. Kreidel, Wiesbaden: **6** (4–6): 52–153, pls 167–178.
- CIANFANELLI S. & MANGANELLI G., 2002. A bibliography of Marianna Paulucci (1835–1919). *Archives of Natural History*, **29** (3): 303–315.
- CIOPI E., DOMINICI S. & MASSA P., 2001. Le collezioni paleontologiche della Marchesa Paulucci conservate presso il Museo di Storia Naturale di Firenze. *Museologia Scientifica*, **16** (2): 219–229.
- COLOMBA M., GREGORINI A., LIBERTO F., REITANO A., RENDA W., POCATERRA G., GIGLIO S. & SPARACIO I., 2008. Dati molecolari su *Chilostoma* (*Campylaea*) *planospira* (Lamarck, 1822) dell'Italia meridionale e Sicilia (Gastropoda Pulmonata Helicidae). Poster at XXXVII Congresso Nazionale Italiano di Biogeografia (CNIB), Catania, Italy, 7 October 2008.
- CROSSE H., 1865. Note sur l'*Helix constricta* et sur sa distribution géographique en France et Espagne. *Journal de Conchyliologie*, **13** (3^e Série, 5): 369–376.
- CROSSE H., 1869. Diagnoses molluscorum novorum. *Journal de Conchyliologie*, **17** (3^e Série, 9) (2): 183–188.
- CROSSE H., 1870. Descriptions d'espèces nouvelles. *Journal de Conchyliologie*, **18** (3^e Série, 10) (1): 97–109, pls 1–2.
- CROSSE H., 1879. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et des îles par M. Paulucci. *Journal de Conchyliologie*, **27** (3^e Série, 19): 82–84.
- D'ANCONA C., 1871. Malacologia Pliocenica Italiana. Fascicolo I. Generi: *Strombus*, *Murex*, *Typhis*. *Memorie del Comitato Geologico d'Italia*, **1**: 1–54, pls 1–7.
- D'ANCONA C., 1872. Malacologia Pliocenica Italiana. Fascicolo II. Generi: *Pisania*, *Ranella*, *Triton*, *Fasciolaria*, *Turbinella*, *Cancellaria*, *Fusus*. *Memorie del Comitato Geologico d'Italia*, **2**: 54–141, pls 8–15.
- DE GREGORIO A., 1896. Appunti su talune conchiglie extramarine viventi e fossili di Sicilia con la spiegazione delle tavole dell'opera di Benoit. *Il Naturalista Siciliano*, **14** (10–12): 183–212.
- DELICADO D., MACHORDOM A. & RAMOS M.A., 2014. Vicariant versus dispersal processes in the settlement of *Pseudamnicola* (Caenogastropoda, Hydrobiidae) in the Mediterranean Balearic Islands. *Zoological Journal of the Linnean Society*, **171**: 38–71.
- DELICADO D., MACHORDOM A. & RAMOS M.A., 2015. Effects of habitat transition on the evolutionary patterns of the microgastropod genus *Pseudamnicola* (Mollusca, Hydrobiidae). *Zoologica Scripta*, **44** (4): 403–417.
- DEL PRETE R., 1879. Note di conchigliologia apuana. *Bullettino della Società Malacologica Italiana*, **5** (4–6): 70–91, pl. 1.
- FÉRUSAC A.E.J.P.F., D'AUDEBARD DE & DESHAYES G.-P., 1820–1851. *Histoire naturelle générale et particulière des mollusques*

scribed not all of them, 10 were attributed to her because she made them available from her publications for the first time. This is the case, in this first part, of the species names by Kobelt (1 taxon) and by Benoit (9 taxa) reported in the *Matériaux* (Paulucci, 1878a). Of the 41 taxa treated, 8 are still valid: *Hyalina etrusca* = *Vitrea etrusca* (Paulucci, 1878), *Hyalina carotii* = *Schistophallus* (*Schistophallus*) *carotii* (Paulucci, 1878), *Helix arbustorum doriae* = *Arianta arbustorum doriae*, *Clausilia vulcanica* = *Siciliaria* (*Stigmatica*) *vulcanica vulcanica* (Paulucci, 1878), *Clausilia transitans* = *Papillifera papillaris transitans* (Paulucci, 1878), *Clausilia deburghiae* = *Papillifera solida deburghiae* (Paulucci, 1878), *Clausilia boettgeriana* = *Dilataria boettgeriana* (Paulucci, 1878), *Pseudamnicola* = *Pseudamnicola* Paulucci, 1878; 28 are synonymised, of these for 22 a univocal synonymy can be defined: *Murex veranyi* = *Purpurellus cyclopterus* (Millet, 1865), *Glandina algira pyramidata* = *Poiretia dilatata dilatata* (Philippi, 1836), *Hyalina alleryi* = *Oxychilus* (*Oxychilus*) *fuscus* (Rossmässler, 1838), *Hyalina fragrans* = *Schistophallus* (*Schistophallus*) *carotii* (Paulucci, 1878), *Helix planospira stablei* = *Campylaea* (*Oricampylaea*) *illyrica illyrica* (Stabile, 1864), *Helix macrostoma ereta* = *Campylaea* (*Campylaea*) cf. *macrostoma* (Rossmässler, 1837), *Helix strigata polita* = *Marmorana* (*Ambigua*) *signata umbrica* (Mabille, 1867), *Helix carsoliana contaminata* = *Marmorana* (*Ambigua*) *signata recondita* (Westerlund, 1876), *Helix carsoliana uzielliana* = *Marmorana* (*Ambigua*) *signata recondita* (Westerlund, 1876), *Helix ligata delpretiana* = *Helix* (*Helix*) *pomatella* Kobelt, 1876, *Helix pomatia pseudoligata* = *Helix* (*Helix*) cf. *pomatia* Linnaeus, 1758, *Clausilia paestana semisculpta* = *Siciliaria* (*Stigmatica*) *paestana paestana* (Philippi, 1836), *Clausilia grohmanniana panormitana* = *Siciliaria* (*Siciliaria*) *grohmanniana* (Rossmässler, 1836), *Clausilia tiberiana* = *Siciliaria* *tiberii tiberii* (Schmidt, 1868), *Clausilia leucostigma bulimella* = *Leucostigma candidescens leucostigma* (Rossmässler, 1836), *Clausilia transitans gracilis* = *Papillifera papillaris transitans* (Paulucci, 1878), *Clausilia deburghiae cylindrelloides* = *Papillifera solida deburghiae* (Paulucci, 1878), *Carychium mariae* = *Carychium minimum* Müller, 1774, *Bythinia lacunoides* = *Mercuria melitensis* (Paladilhe, 1869), *Amnicola cocchii* = *Mercuria melitensis* (Paladilhe, 1869), *Valvata delpretiana* = *Valvata* (*Valvata*) *cristata* Müller, 1774, *Pisidium nucleum* = *Pisidium casertanum* (Poli, 1791). Of other 5 taxa a double synonymy is given as in the series of types two different taxa resulted: *Clausilia kobeltiana furcata* = *Siciliaria* (*Stigmatica*) *vulcanica vulcanica* (Paulucci, 1878) (partim) and *Siciliaria* (*Stigmatica*) *kobeltiana* (Küster, 1876) (partim); *Clausilia kobeltiana contorta* = *Siciliaria* (*Stigmatica*) *kobeltiana* (Küster, 1876) (partim) and *Siciliaria* (*Stigmatica*) cf. *vulcanica vulcanica* (Paulucci, 1878) (partim); *Clausilia bidens circinata* = *Papillifera papillaris affinis* (Philippi, 1836) (partim) and *Papillifera papillaris papillaris* (Müller, 1774) (partim); *Bythinia scalarina* = *Pseudamnicola orsinii* (Küster, 1852) (partim) and *Pseudamnicola* sp. (partim), *Amnicola vestita* = *Pseudamnicola moussonii* (Calcara, 1841) (partim) and *Pseudamnicola orsinii* (Küster, 1852) (partim). Furthermore, for *Thermhydrobia*, the genus is not definable as it refers both to *Turbo thermalis* Linnaeus, 1767 (gen. *Bel-*

grandia) and to *Hydrobia aponensis* von Martens, 1858 (gen. *Eupaludestrina*). The last 5 are taxa inquirenda, as their taxonomic classification, at species or subspecies level, is not yet clear, and therefore they require new investigations: *Helix orsinii umbrica*, *Helix muralis alutacea*, *Pupa scalaris*, *Pomatias pirajni*, *Bythinia segestana*. Many of these entities are still not the subject of modern revisions, especially from a genetic point of view, investigations that could change their status in the future.

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We thank Alberto Ballerio, Alessandro Minelli and Folco Giusti for the precious advice on the nomenclatural aspects related to the ICZN standards, Fausto Barbagli for granting the publication of the image of Paulucci, Saulo Bambi for taking some of the photographs, Ivano Niero for the anatomies of *Pseudobithynia*, Elena Gavetti for the research on historical material in the Regional Museum of Natural History in Turin, Sabina Cavicchi from the library of the Scientific Pole of the University of Florence for bibliographic support and Laura Lusvardi, Ignazio Sparacio, Riccardo Giannuzzi Savelli, for support in the research and historical documentation. Thanks for the information on historical samples to Sigrid Hof, Katrin Schniebs and Julia Sigwart (Senckenberg Natural History), and to Jeroen Gould (Naturalis Biodiversity Center, Leiden). Giordano Turchi and Fattori Daniela of the State archive of Florence for their collaboration in the research in the Panciatichi Fund.

Bibliography

- ALZONA C., 1971. Malacofauna Italiana. Catalogo e bibliografia dei molluschi viventi, terrestri e d'acqua dolce. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano*, **111**: 1–433.
- ARADAS A. & BENOIT L., 1871. Nota sopra una nuova specie malacologica del genere *Mactra* di Linneo. *Atti dell'Accademia Gioenia di Scienze Naturali in Catania*, serie terza, **5**: 83–84.
- ARRIGONI DEGLI ODDI E., 1921. Della vita e delle opere della Marchesa M. Paulucci, malacologa italiana. *Atti del Regio Istituto veneto di scienze lettere ed arti*, Venezia, **80**: 59–70.
- BANK R.A. & GITTENBERGER E., 1985. Notes on Azorean and European *Carychium* species (Gastropoda Basommatophora: Ellobiidae). *Basteria*, **49** (4–6): 85–100.
- BANK R.A. & NEUBERT E., 2017. *Fauna Europaea Project. Checklist of the land and freshwater Gastropoda of Europe*. <http://www.molluscabase.org/aphia.php?p=sourcedetails&id=279050>. Last update: July 16th, 2020.
- BARBAGLI F., 2019. *Una naturalista nella Toscana di fine Ottocento: Marianna Panciatichi Ximenes d'Aragona Paulucci*, in Simonella Condemi, Lessico Femminile, Ed. Sillabe, Firenze: 72–77.
- BARBAGLI F. & BORRI M., 2002. La donazione della collezione Malacologica Paulucci al Museo Zoologico "La Specola" dell'Università di Firenze. *Museologia Scientifica*, **17** (1): 63–68.
- BARBAGLI F. & LOTTI S., 2002. Raccolte e studi botanici di Marianna Paulucci, in Manganelli G. & Cianfanelli S. (eds), 4°

A

Toulouse 5 Mars 1878

Madame la Marquise

Je n'ai pas encore eu le honneur de
répondre à votre bonne lettre du 24 du
mois dernier et de vous remercier des
obligations que vous me faites. Je voulais
avant de vous envoyer la diagnose que
vous m'avez demandée, la faire vérifier
par mon ami Monsieur Trépot dont
le coup d'œil est excellent et qui, pour
me voir qu'il y a quatre ou cinq jours, grâce
à lui j'ai pu ajouter plusieurs observations
qui complètent cette petite notice.

Si vous desirer quelques uns des échantillons
que nous avons dans le Mus. de la France
et particulièrement dans nos régions d'ici
les comparer à celles de l'Italie dont vous
avez, spécialement, nous parler, moi en Italie
une liste, si je ne les possède pas en double,

C

Pomatias Cassiniacus

Testa inaequaliter, conoidea elongata, obliquisculi
grasso cornea, parva pallida, costata (costa
obliqua, sinuata, valde prominenter distincta),
apex subacuminata, apice rotundato ac
mucronato. Inflectionibus 10, turgida rotundata,
regulariter crescentibus, suture perprofunda
separatis, embryonalibus 3 cornes flavescentes
laxigatis, minimis, secundis turgidis ac laevigatis,
tertius subtilissime lineatus. Ceteris valde
costatis (costa pallida), ultimo basi vix
infundibuliformi, non carinato, apertura
vix obliqua, rotundato, periculi lunatis,
peristomate crasso, reflexo, expanso, albo,
vix continuo, margine columellari crasso,
subbilabiato, auriculato, margine externo non
reflexo, canaliculato, recurvato. Operculo tenui,
pellucido, concavo, non granulato, anfractu
obsoleto suturatis, vix striatis.

Haecetus 6 millimetris. Diameter 2 3/4

Il habite un peu au dessus de Saint-Cassini
les murs de l'entournement qui sont la même
ville, dans le Saint-Cassini à l'altitude
de 2000 mètres, près de la Caserta.

Le Pomatias Cassiniacus appartient au groupe
du P. patulus dont le type est avec cassini et le type

B

mes correspondants me les procureront. Il y a
surtout des localités qui présentent un grand intérêt
à Montpellier, par exemple, à cause des types de cette
pour la première fois par M. Dupuy et que l'on
a confondu avec des espèces publiées antérieurement
de nos côtés un exemple de ce dont je viens de
parler: L'Helix incerta de D'Invernizzi que
nous possédons près de Toulouse et dans les
Pyrenées a été réunie à notre Helix incerta
par Gmelin, comme le prouvent les ouvrages
de Lamarck, Mollat et M. Dupuy.
Grâce à vous, j'ai pu comparer les animaux de
ces deux espèces, celui de l'Italie est plus clair, à
tubercules plus écartés, la machoire est plus allongée
vers les deux bords, tandis que celle de l'incerta
est en demi-cercle. Les tours de la coquille de celui
sont plus bombés et plus bombés. Si vous ne possédez
pas ce type je vous prie d'être obligé de me le faire faire
afin que je puisse vous l'envoyer vivant. Vous me
rendrez service en même temps si vous pouvez me
faire parvenir un ou deux individus vivants
aussi de l'Helix incerta de Tetraca, ainsi que
le Pupa bispinata dont je ne possède que deux
specimens trouvés dans les débris de l'Helix à Tetraca.

Je crois que pour le Pomatias Cassiniacus on doit le
nom de Bourguignat qui est été ajouté au nom
de Bourguignat comme nom d'auteur, et ainsi que c'est lui qui
a reconnu la première que cette espèce est différente des
autres déjà décrites en Italie et en France, nous la nommerons
Pomatias Bourguignati.

Je vous prie d'agréer, Madame la Marquise,
l'assurance de mon profond respect et de ma haute estime.
Je suis, Madame la Marquise, votre dévoué serviteur,
Saint-Simon.

D

mais il diffère de celui-ci par les tours qui croissent
bien plus régulièrement, les trois premiers surtout;
il en résulte que la coquille est moins trapue à
sa base. L'ouverture est plus allongée, le péristome
est moins épais et moins distinctement bilabié,
enfin les côtes sont beaucoup plus fines et bien plus
espacées, en outre celles des deux derniers tours de
particuliers sont réduites à des stries. Le Cassiniacus
présente de plus grands rapports avec la
Pomatias protractus de Parreyssie qu'avec la patulus,
mais il est plus petit, plus
opaque, les côtes sont plus brillantes et plus
espacées, l'ouverture est moins grande, presque
circulaire, tandis que celle du protractus est plus
oblique, la courbure du bord externe étant plus
forte dans cette dernière espèce, enfin l'ouverture de
celui-ci est plus rapprochée de l'ombilic.

Le Pom. Cassiniacus diffère à peu près des autres
mêmes rapports de Pomatias alacis espèce
particulière aux montagnes situées au Nord du
Grasse (Alpes maritimes).

Quant au Pomatias alacis, il est très-
voisin pour ne pas dire plus, du P. patulus; il n'en
diffère que par la taille un peu moindre, les tours
un peu plus bombés et un peu plus distincts, le péristome
est un peu plus mince. Je crois qu'on peut le considérer
comme n'étant qu'une simple variété du Pomatias
de Montpellier. Je possède un individu de celui-ci
presque aussi petit que ceux de Dalmatie,

Fig. 60 Letter from Saint-Simon dated 25 March 1878, in which it can be shown that the diagnosis of *Pomatias cassiniacus* is by Saint-Simon, also in the French part and therefore the taxon is to be attributed exclusively to him. Letter preserved in the State Archive of Florence.

lished combination of *Amnicola delpretiana*, which was never implemented. Given these ambiguities, it is considered appropriate to consider the name *Amnicola viridis*, Paulucci, 1878 not available.

Other taxa, mentioned in literature, erroneously attributed to Paulucci (1878a)

Alzona (1971, p. 123) reported "*Retinella* (*Aegopinella*) *nitidula amiatae* (Paulucci, 1878)", referring to Paulucci (1878a). Riedel (1983) reported "*Hyalinia nitidula* var. *amiatae* "Paulucci" Westerlund, 1886 "and, based on the syntypes, in the MZUF collection, attributed the taxon to *Oxychilus alliarius*, cited by Giusti (1969) for the Casentino, east of Florence, but findings of this species in Italy could refer to *O. meridionalis* Paulucci, 1881, or to other entities (Manganelli et al., 1995). Actually, in Paulucci (1878a), on p. 2, n° 29 of the table, only *Hyalina* s. str. sp., was mentioned and in note 7 on p. 25, the author cited only two forms without assigning any names. The first form, that of Monte Amiata, of which no description is given, was later on described by Westerlund (1886, p. 57), who mentioned it as "*Hyalinia* (*Polita*) *nitidula* var. *amiatae* Paul. in sc.". Westerlund (1866) writing "*Paul. in sc.* [hedis]", followed by a diagnosis, become the first descriptor, because the authorship of the description to Paulucci can not be proved. Bank & Neubert (2017) considered erroneously *amiatae* Paulucci, 1878, synonym with *Aegopinella nitens* (Michaud, 1831). Another taxon wrongly attributed to Paulucci (1878a) is *Helix* (*Trichia*) *cinctella* Var. *ecarinata*. Both Alzona (1971) and Bank & Neubert (2017) considered this taxon synonym with *Hygromia* (*Hygromia*) *cinctella* (Draparnaud, 1801) and attributed it to Paulucci. Actually, in the table on p. 3, n° 89, this name is reported with the sole indication for Tuscany, without a note describing it. Therefore, it must be considered as a *nomen nudum*. The taxon was later described by Del Prete (1879, p. 73) as *Helix cinctella* Var. *ecarinata*, and therefore must be attributed to this author.

Helix pyramidata Var. *gratiosa*, is mentioned in Paulucci (1878a) in the table on p. 6, n° 155, doubtfully from Lampedusa, and treated in note 37 on p. 33, where it is defined as different from *Helix apiculus*, but no description is given. The taxon *Helix* (*Xerophila*) *pyramidata* Var. *gratiosa* Paulucci, 1878, is cited as a synonym of *Trochoidea cumiae* (Calcara, 1847) by Beckmann (1992) and Bank & Neubert (2017) but, from the specimens in Paulucci collection, it seems a different species, at the moment as *taxon inquirendum*. In fact, having no description, *H. p. gratiosa* should be considered as *nomen nudum*.

Welter-Schultes & Audibert (2013) considered Paulucci coauthor of *Cochlostoma montanum cassiniacum*: "*C. montanum cassiniacum* (Saint-Simon, 1878). The name *Pomatias cassiniacus* was attributed to Saint-Simon (we take this name from Paulucci, 1878: 45), the Latin diagnosis was attributed Saint-Simon, the French parts of the original description (comparisons with other species) were clearly

written by Paulucci. Saint-Simon was not alone responsible for both the name and the description. Paulucci was the author of the work. Under art. 50.1.1 the name should be attributed to Paulucci." Subsequently in AnimalBase, Welter-Schultes (2013) attributed *Cochlostoma montanum cassiniacum* to Saint-Simon & Paulucci, 1878. We were able to find out a letter (preserved in the State Archive of Florence (Fig. 60)) by Saint-Simon dated 25 March 1878 sent to Paulucci, that the French part reported in the *Materiaux* was also part of Saint-Simon's diagnosis and that the correct attribution of this taxon is *Cochlostoma montanum cassiniacum* (Saint-Simon in Paulucci, 1878). On the other hand, also in Paulucci (1878c) the taxon is attributed to Saint-Simon.

Other taxa established by Paulucci (1878a) considered as a *nomina nuda*, described in subsequent works

All the following names are *nomina nuda* and will be described later, with the exception of *Helix* (*Campylaea*) *cingulata* Var. *intermedia*, which is placed in synonymy with the var. *nisoria* of the *Helix carrarensis* by Paulucci (1881a).

Helix (*Campylaea*) *planospira* Var. *Casertana*; p. 4, n° 107; p. 29, note 22 (described by Paulucci, 1880b);

Helix (*Campylaea*) *planospira* Var. *Calabrica*; p. 4, n° 107; p. 29, note 22 (described by Paulucci, 1880b);

Helix (*Campylaea*) *planospira* Var. *Neapolitana*; p. 4, n° 107; p. 29, note 22 (described by Paulucci, 1880b);

Helix (*Campylaea*) *planospira* Var. *Cassinensis*; p. 4, n° 107; p. 29, note 22 (described by Paulucci, 1880b);

Helix (*Campylaea*) *cingulata* Var. *Lucensis*; p. 5, n° 115; p. 30, note 26 (described by Paulucci, 1881a);

Helix (*Campylaea*) *cingulata* Var. *affinis*; p. 5, n° 115; p. 30, note 26 (described by Paulucci, 1881a);

Helix (*Campylaea*) *cingulata* Var. *intermedia*; p. 5, n° 115; p. 30, note 26 (synonymised with the var. *nisoria* of the *Helix carrarensis* by Paulucci, 1881a).

Pomatias septemspirale Var. *turricula*; p. 17, n° 439; var. *turriculata*; p. 44, note 94 (described by Paulucci, 1879c, as *P. turricula*); the concise description in the note is in common with the following taxon;

Pomatias septemspirale Var. *elegantissima*; p. 44, note 94 (described by Paulucci, 1879c); the concise description in the note is in common with the previous taxon;

Bythinella Doderleini; p. 19, n° 493; p. 51, note 124, described by Benoit in 1882 (Benoit, 1882a, 1882b).

Amnicola aretusae; p. 19, n° 482; p. 49, note 117 (Paulucci, 1878a). The species attributed by Paulucci to Monterosato, however, was never described by either Paulucci or Monterosato and the name was instead made available by Benoit in 1882 (Benoit, 1882a, 1882b).

Conclusions

In this first part, 41 taxa published by Paulucci in 1866 and 1878a are treated. Marianna Paulucci expressly de-

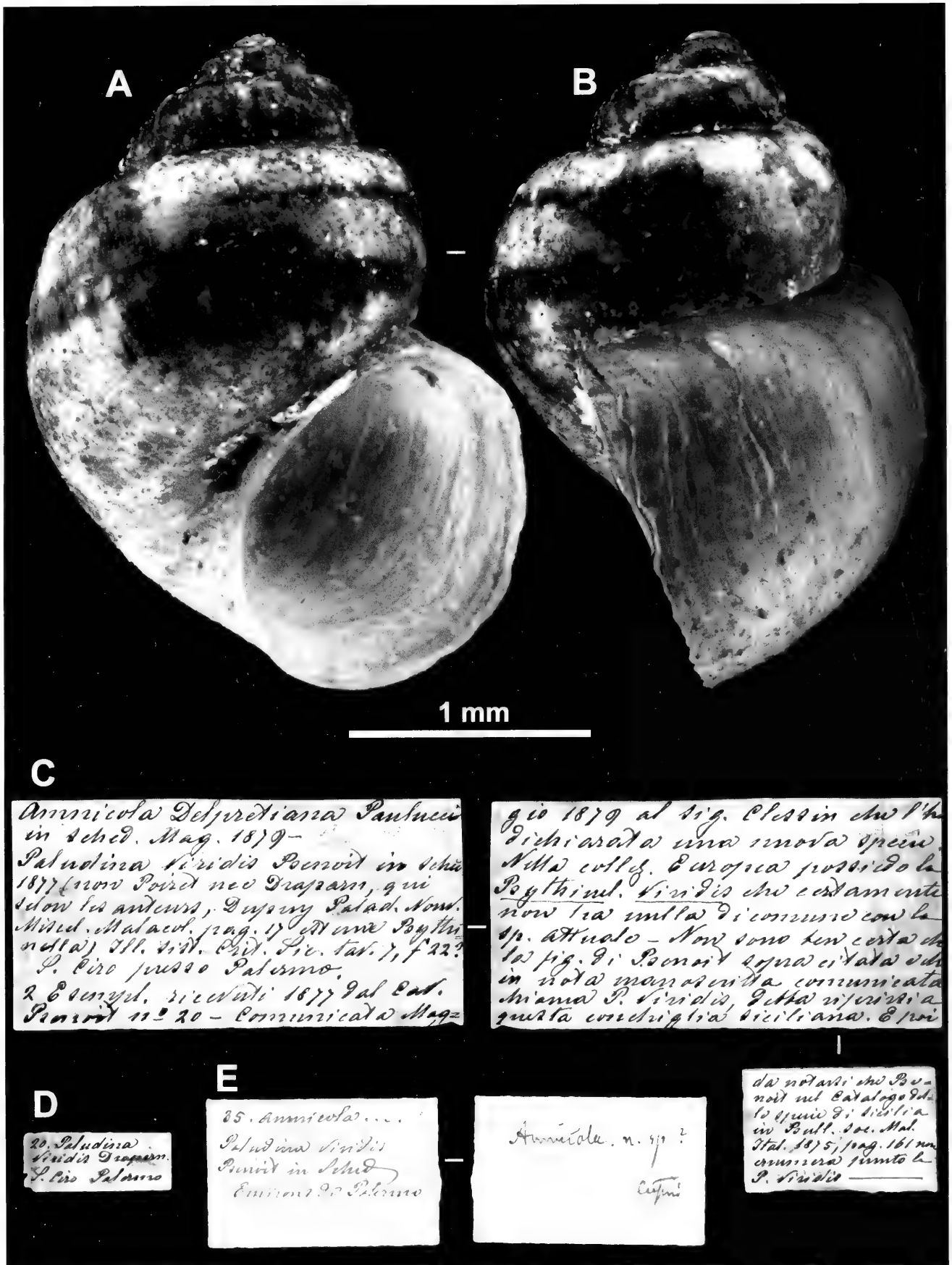


Fig 59 *Pseudamnicola moussonii* (Calcara, 1841). ?*Amnicola viridis*, Paulucci, 1878. Shell of a specimen of *Amnicola siculina* Benoit, 1882 from "S. Ciro presso Palermo", MZUF GC/18814. **A** Frontal view **B** Right lateral view **C** Front and back of the most recent original label in the box, with addition **D** First original label **E** Shipping label of M. Paulucci to S. Clessin with the German author's writing on the back, attached to the base of the box, in the MZUF

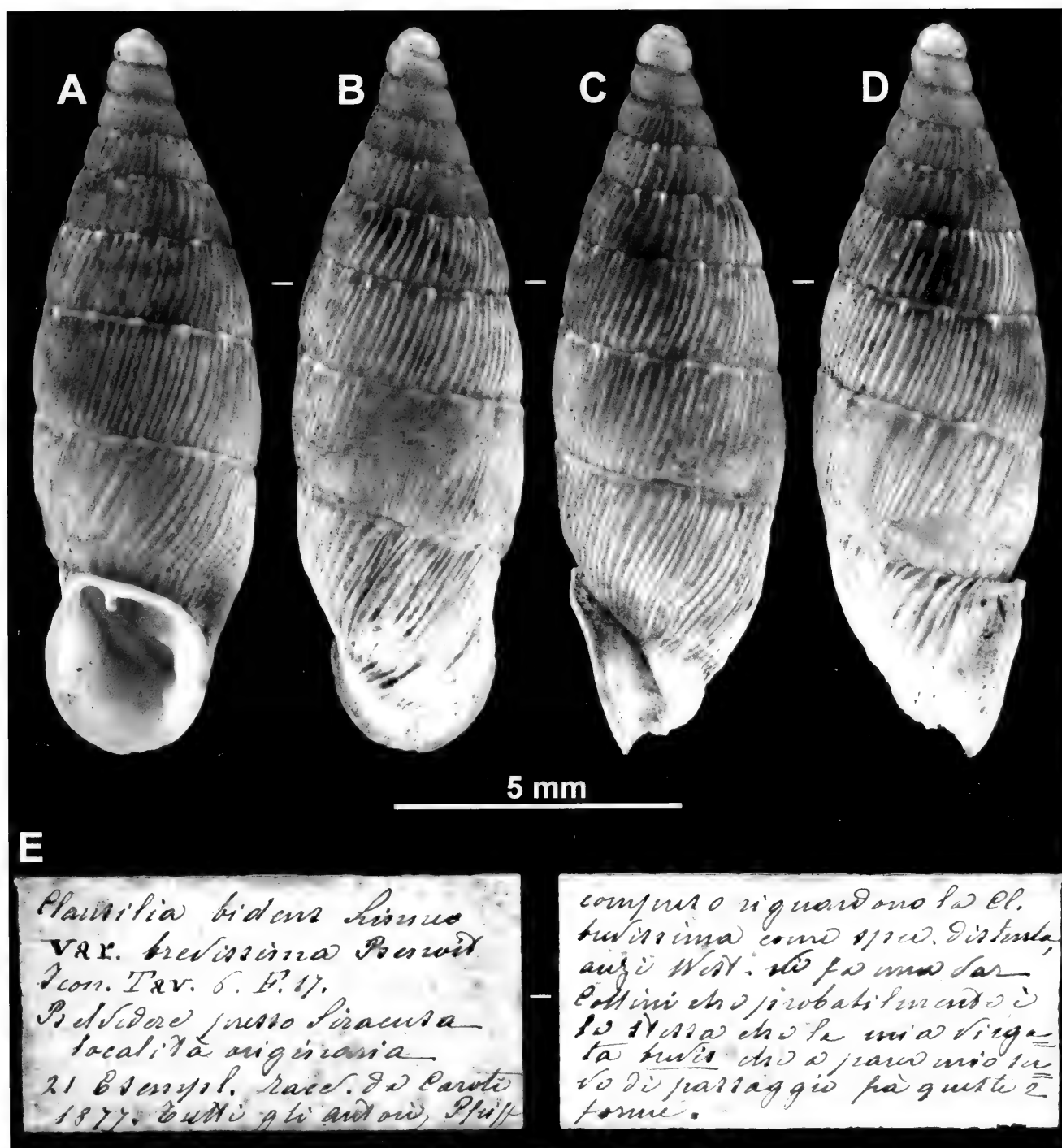


Fig 58. *Papillifera papillaris affinis* (Philippi, 1836). Shell of *Clausilia* (*Papillifera*) *bidens* Var. *brevissima* Benoit, 1882; from "Belvedere presso Siracusa", MZUF GC/58122. **A.** Frontal view. **B.** Dorsal view. **C.** Left lateral view. **D.** Right lateral view. **E.** Front and back of the original label.



Fig 57 *Charpentieria (Siciliaria) nobilis* (Pfeiffer, 1848). Shell of *Clausilia (Siciliaria) Sicula* Benoit, 1876 (*nomen nudum*); from "Boschi di Calatafimini", MZUF GC/62344 **A** Frontal view **B** Dorsal view **C** Left lateral view **D** Right lateral view. **E**. Original label of L. Benoit in the box

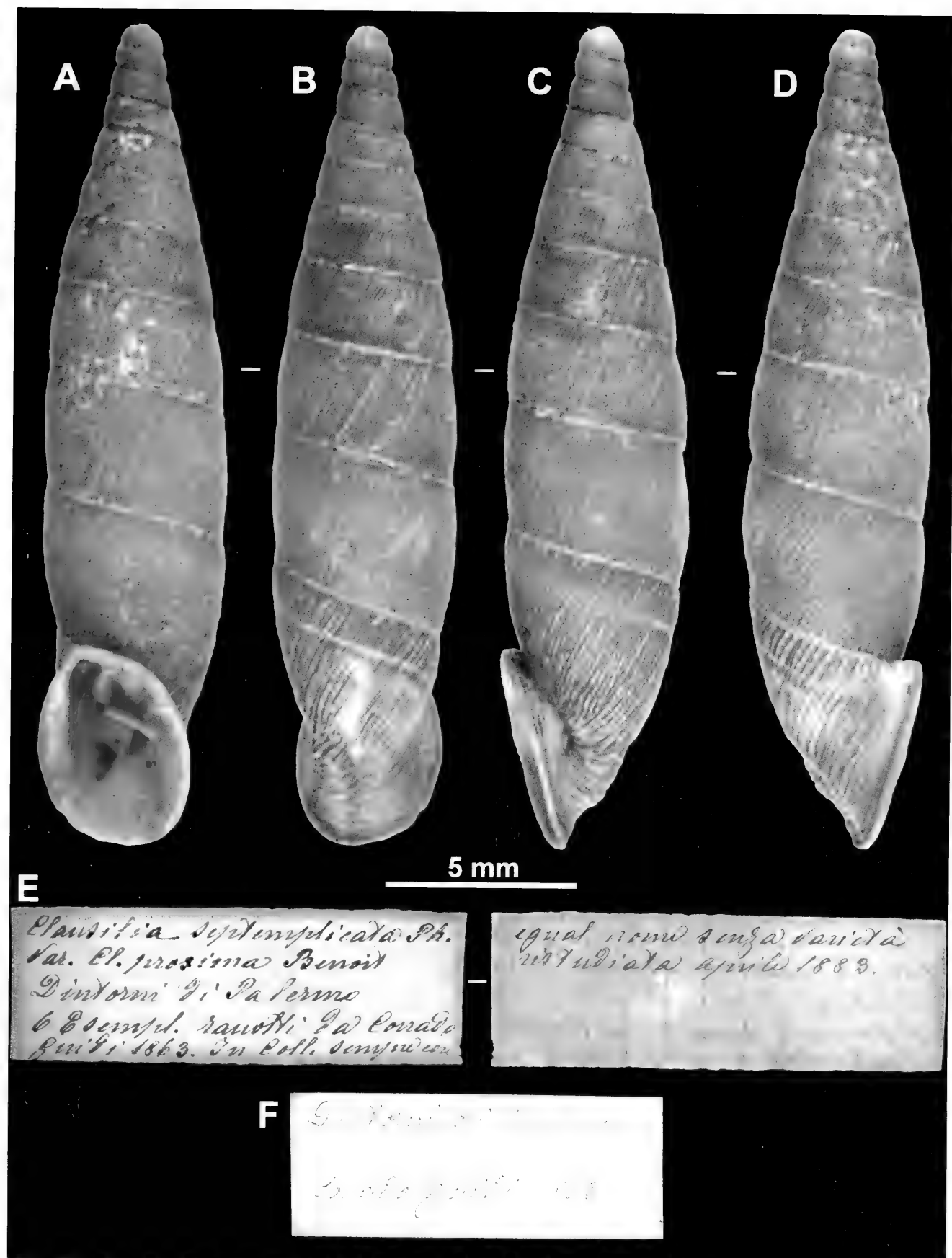


Fig. 56. *Siciliaria (Siciliaria) septemplicata septemplicata* (Philippi, 1836). Shell of *Clausilia (Siciliaria) septemplicata* Var. *prasina*, Paulucci, 1878 = *Clausilia prasina* Schmidt, 1868, from "Dintorni di Palermo", MZUF GC/62350. **A.** Frontal view. **B.** Dorsal view. **C.** Right lateral view. **D.** Left lateral view. **E.** Front and back of the original label. **F.** Back of the cardboard on whose black front the specimens were attached.

Come al solito al ritorno delle 2 statue
 le spedirò quegli esemplari dei
 quali potrò disporre.
 Il n° 9 proviene dalla collezione Del
 Sig. Benoit; è il Pisidium nucleum
 di questo autore! Le mando il solo
 individuo che io possiedo per sen-
 tire il giudizio di lei sul propo-
 sito.
 È veramente una specie nuova?
 Il Reina mi ha assicurato di aver
 trovato questa specie a Vizzini,
 ma non seppe indicarmi con pre-
 cisione la località ove la rinvenne.
 Appena potrò farlo visiterò le acque
 di questi dintorni per vedere se
 riuscirò a trovare altri individui
 simili.
 Il n° 6. mi sembra contenere più
 di una specie.

Fig. 55 Extract of a letter from Corrado Cafici, Vizzini, on 18 December 1880, in which it is clear that the sample sent by Benoit to Cafici is the type that will be sent to Paulucci. Letter preserved in the State Archive of Florence.

Note on other taxa-names in Paulucci (1878a) but not valid

Among the names dealt with by Paulucci (1878a), linked to Benoit's tables, there are four ones (*Clausilia* (*Siciliaria*) *septemPLICATA prasina*, *Clausilia* (*Siciliaria*) *sicula*, *Clausilia* (*Papillifera*) *bidens brevissima*, *Amnicola viridis*), which represent particularly complex cases which bring to different interpretations. Not finding a clear resolution in the articles of the Zoological Nomenclature Code (ICZN, 1999) we preferred to deal with them in this section, not considering them as available taxa described by Paulucci, also taking into account the opinion of experts in nomenclatural issues. We therefore reported in this section the problems concerning these four names.

***Clausilia* (*Siciliaria*) *septemPLICATA* Var. *prasina* (Fig. 56):** it was mentioned in Paulucci (1878a) in table at p. 13, n° 322, attributing it to Benoit (1859, plate 6, fig. 19). Benoit (1876, p. 151) established *Clausilia prasina* without any description and cited as its synonyms: "*C. proxima* Benoit, *C. septemPLICATA* var. *L. Pfeiffer*". Benoit (1882, p. 103) corrected the previous attribution by considering: *C. prasina* synonym of *C. proxima*: "- *prasina*, (*errata*) (*non* Benoit), *Pfeiffer*". Paulucci (1878a), used the name *Clausilia septemPLICATA* Var. *prasina* correlating to the fig. 19 of tab. 6 by Benoit (1857-1875), therefore this name should be available from Paulucci (1878a) but Schmidt (1868) had already described this taxon with the name *C. prasina*, ascribing the name assigned by Benoit to the specimens he received from him. Therefore, the taxon reported by Paulucci (1878a) was the same as that of *C. prasina* Schmidt, 1868, and, if it were a taxon attributable to Paulucci, it would be both homonymous and synonymous *junior*. Nordsieck (2013a) and Bank & Neubert (2017) correctly attributed the taxon *prasina* to Schmidt, 1868, considering it in synonymy with *Siciliaria* (*Siciliaria*) *septemPLICATA septemPLICATA* (Philippi, 1836).

***Clausilia* (*Siciliaria*) *sicula* (Fig. 57):** it was mentioned in Paulucci (1878a) in table at p. 13, n° 329, referring to Benoit (1859), pl. 6, fig. 14. Rossmässler (1856, pp. 59-60, n° 874) synonymised *Clausilia sicula* Benoit with *Clausilia nobilis* Pfeiffer, 1848: "- *sicula* Benoit, sec. Parr. in litt.", without giving any description or illustration. Benoit (1876, p. 151) mentioned the taxon for the first time without describing it (*nomen nudum*). Paulucci (1878a) also reported the name *C. sicula* as a synonym of *C. nobilis*. Nordsieck (2013a) in giving the synonymy with *S. nobilis* wrote: "*C. sicula* Rossmässler 1856 (*validated by Paulucci 1878*)", but Paulucci (1878a) did not validate this name as she considered it a synonym. In conclusion, based on the evaluation criteria of the zoological nomenclature code (ICZN, 1999: Arts 11.6, 11.6.1), it is deduced that, since the name *C. sicula* has always been treated as a synonym, the name is not available.

***Clausilia* (*Papillifera*) *bidens* Var. *brevissima* (Fig. 58):** it was mentioned in Paulucci (1878a) in the table at p. 13,

n° 335, referring to Benoit (1859), pl. 6, fig. 17. Benoit described it only later (Benoit, 1882a, pp. 114-115; 1882b, pp. 155-156). This name is a homonym as Pfeiffer (1859, p. 742) previously described the same taxon on specimens received from Benoit, so the name attributed by Paulucci (1878a) is a homonym and not available. Both Nordsieck (2011b) and Bank & Neubert (2017) considered this taxon, attributed to Benoit, 1876 (not 1875), synonymous with *Papillifera papillaris affinis* (Philippi, 1836).

?*Amnicola viridis* (Fig. 59): cited in Paulucci (1878a) in the table at p. 19, n° 482 (probably as a synonym, even if it is not written in italics, of ?*Amnicola* sp.), and in note 118 at p. 49 relating to "*Amnicola*". Paulucci (1878a) reported the name of "?*Amnicola viridis*" correlating it to the fig. 22 of table 7 by Benoit, specifying that it is not *Paludina viridis* by Poiret or Draparnaud, but a possible new species. It is plausible that for Paulucci (1878a) it did not corresponded to the figures and description of *viridis*, and did not possessed typical specimens of this species for comparison. It should be noted that Benoit (1876) never published this name for a Sicilian species. Subsequently Benoit (1882a, pp. 203-204; 1882b, pp. 163-164) described with the name of *Amnicola siculina* Benoit, 1882, what he previously sent to his correspondents under the name of *Paludina viridis*: "*Questa conchiglia che avevamo comunicata ai nostri corrispondenti col nome di P. viridis deve invece considerarsi come specie distinta. Ci conferma in questo parere l'opinione della Marchesa Paulucci.*" [This shell that we communicated to our correspondents with the name of *P. viridis* it should be considered instead as a distinct species. The opinion of the Marchesa Paulucci confirms our view point.] (Benoit, 1882a, p. 164; 1882b, p. 204). *Bulimus viridis* Poiret, 1801 is a species now considered valid, belonging to the genus *Bythinella* Moquin-Tandon, 1855 (Boeters, 1974; Bank & Neubert, 2017; MolluscaBase, 2020). "?*Amnicola viridis*", Paulucci (1878a) is a name that, if considered available, would turn out to be a senior synonym of *Amnicola siculina* Benoit, 1882. The typical material of this "*viridis*" from the Paulucci collection is reported under the name of "*Amnicola Delpretiana* Paulucci, in sched.". Its examination allowed attributing the taxon to the genus *Pseudamnicola* Paulucci, 1878, therefore to a different genus (*Pseudamnicola*) from that of the Poiret species (*Bythinella*). Giusti (1976) considered *Amnicola siculina* Benoit, 1882, as a probable synonym of *Pseudamnicola moussonii*. Since the genetic data for the populations of *Pseudamnicola* of north-western Sicily referred to *P. moussonii* (Calcara, 1841) (Delicado et al., 2015), the sample is attributed to this species. In conclusion, Paulucci considered the material sent to her by Benoit as a possible new species, as she probably considered "?*Amnicola viridis*" as a synonym for "?*Amnicola* sp.". Nevertheless, by associating it with Benoit's table, in the table on p. 19, thus theoretically the name of *Amnicola viridis* was made available. Paulucci's intention, as shown by the label associated with the sample (Fig. 59 C) was to describe the specimen received under the name of *Paludina viridis* by Benoit, with the unpub-

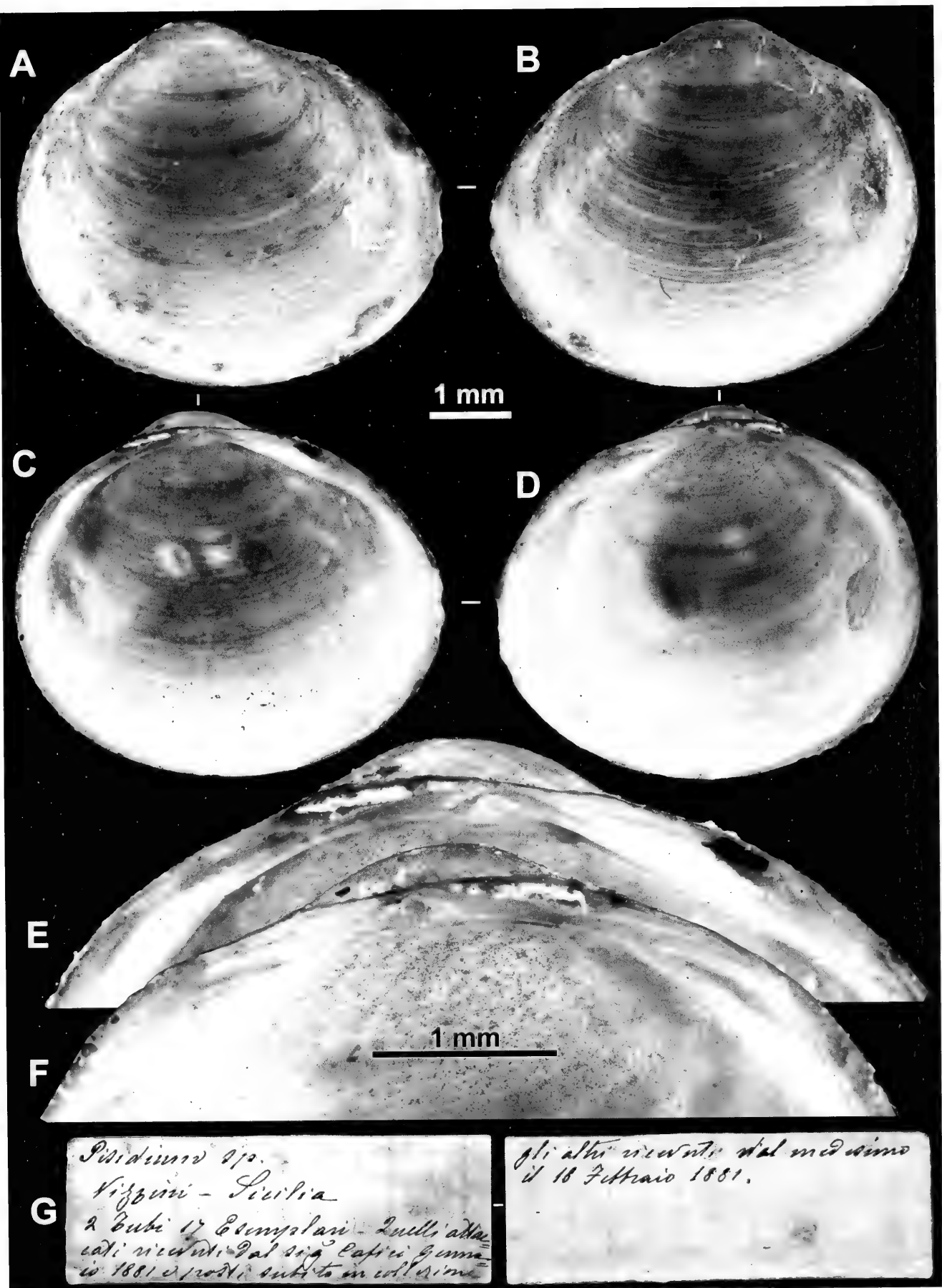


Fig. 54. *Pisidium casertanum* (Poli, 1791). Shell of *Pisidium nucleum* Paulucci, 1878; a syntype from "Vizzini Sicilia", MZUF BC/1451. A. Right valve external view. B. Left valve external view. C. Left valve internal view. D. Right valve internal view. E. Enlargement of the left hinge valve. F. Enlargement of the right hinge valve. G. Front and back of the original label.

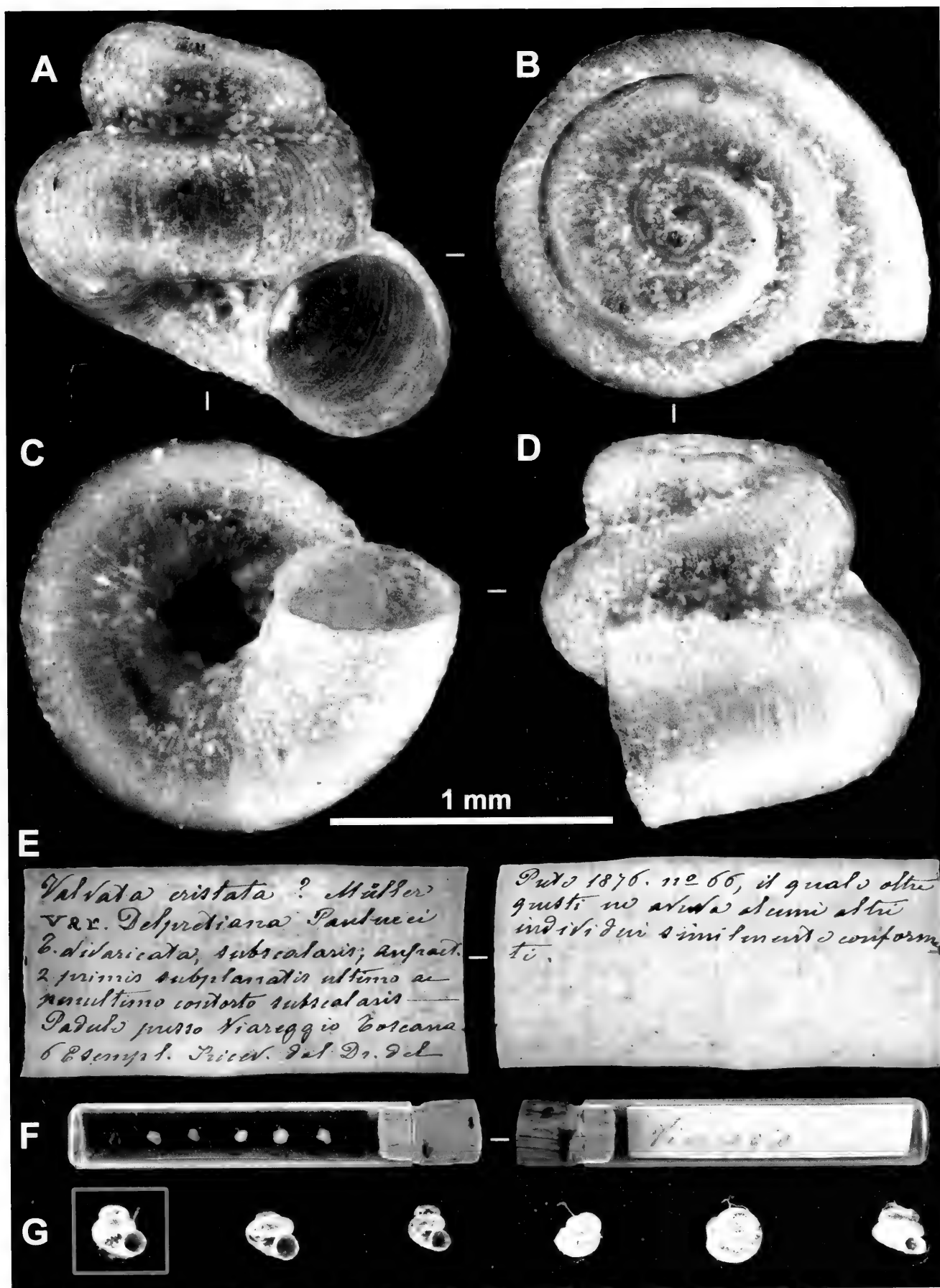


Fig. 53. *Valvata (Valvata) cristata* Müller, 1774. Shells of *Valvata cristata*? Var. *Delpretiana* Paulucci, 1878; all syntypes from "Paduli presso Viareggio Toscana", MZUF GC/11959. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Front and back of the original label. **F.** Original test tube with double-sided cardboard; on the black face 6 syntypes are glued, in the MZUF. **G.** The 6 syntypes glued on black cardboard, the specimen in the red square is the one photographed in A-D.

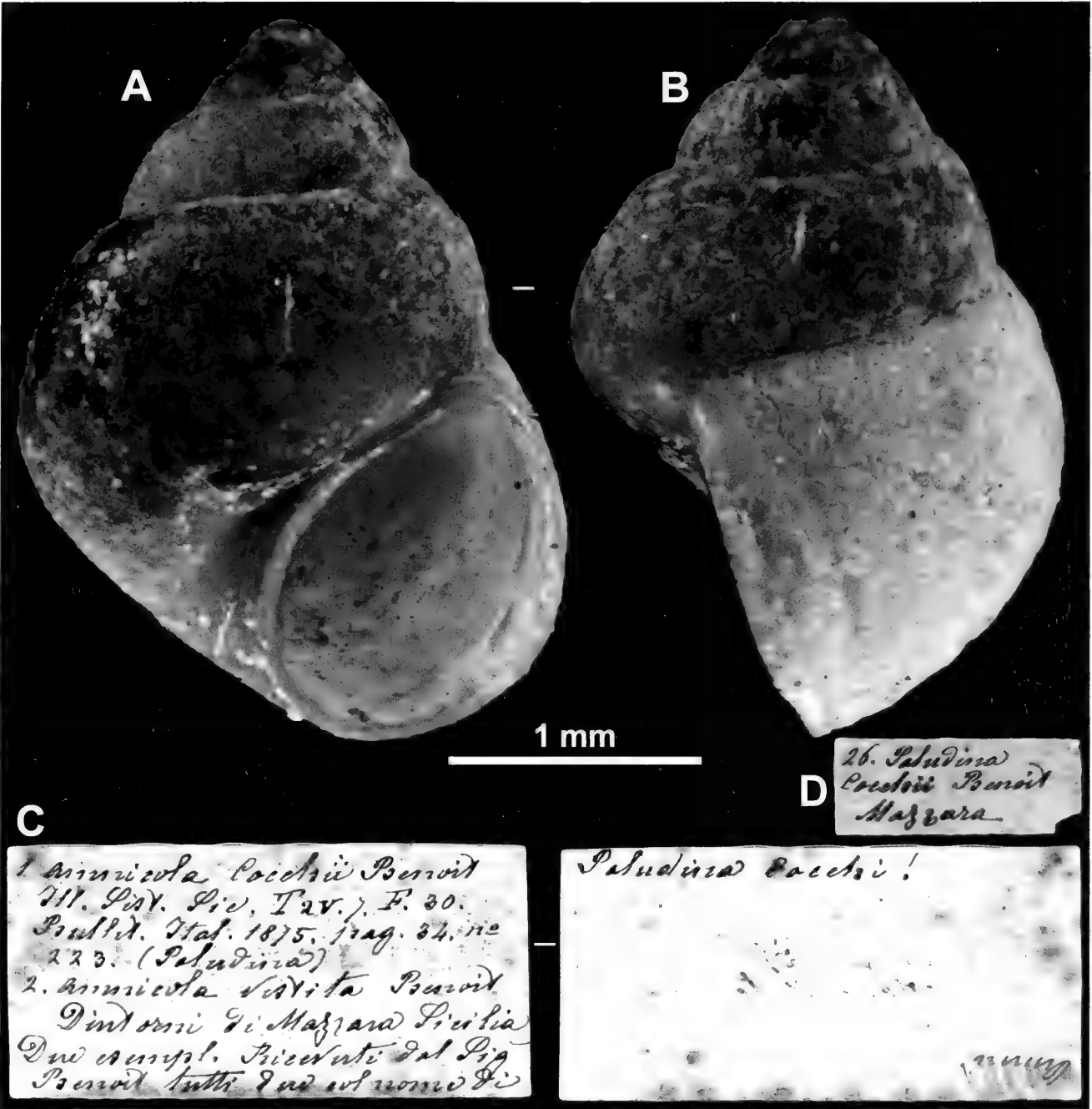


Fig. 52. *Mercuria melitensis* (Paladilhe, 1869). Shell of *Amnicola Cocchii* Paulucci, 1878; lectotype from; "Dintorni di Mazzara Sicilia", MZUF GC/13150. **A.** Frontal view and right lateral view. **B.** Second original label in recto e verso. **C.** Front and back of the most recent original label in the box. **D.** The first original label in the box.

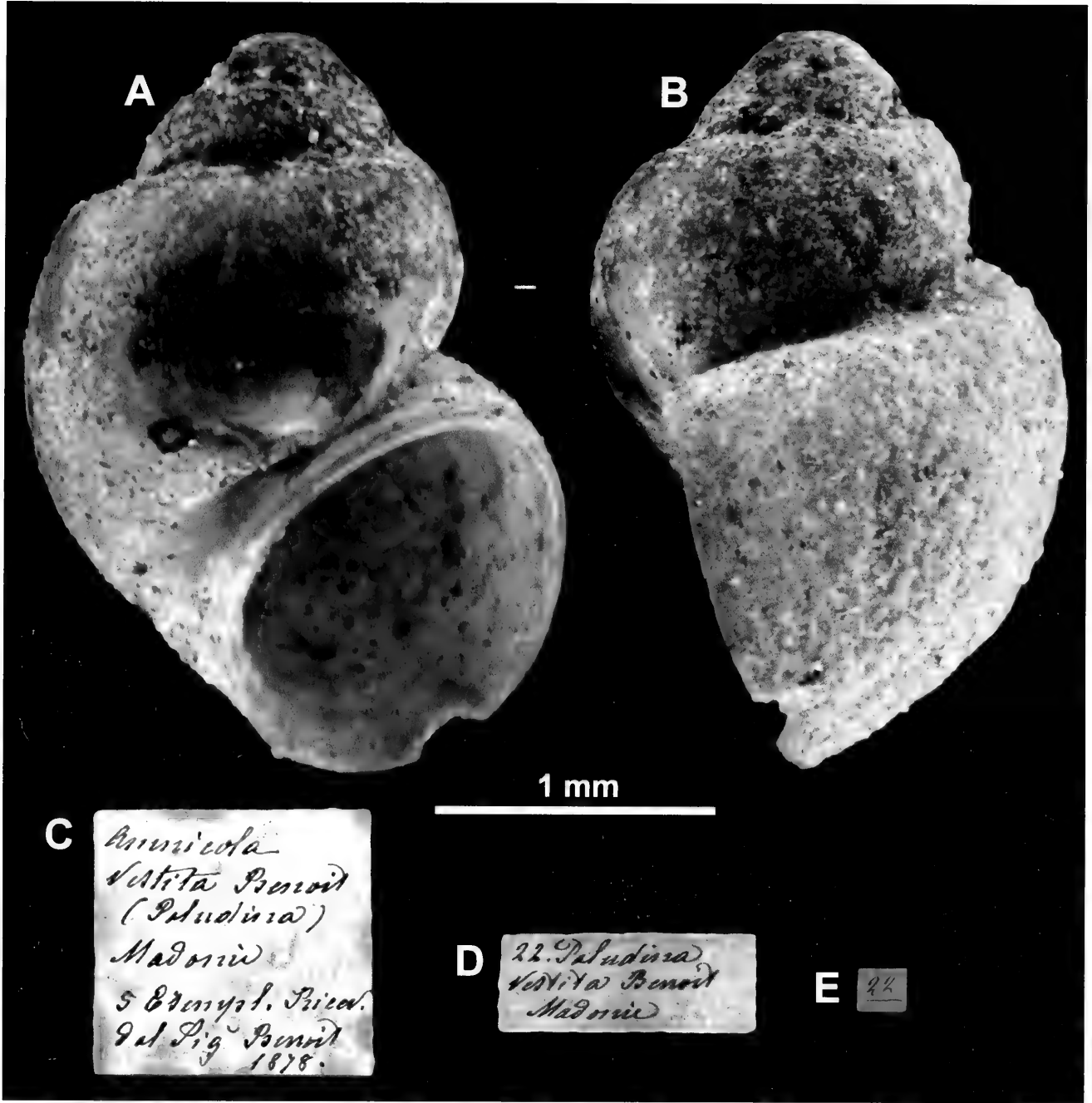


Fig. 51. *Pseudamnicola moussonii* (Calcara, 1841). Shell of *Amnicola vestita* Paulucci, 1878; a syntype from "Madonie", MZUF GC/13660. **A.** Frontal view. **B.** Right lateral view. **C.** The most recent original label in the box. **D.** The first original label in the box. **E.** Probable shipment number of Benoit's sample.

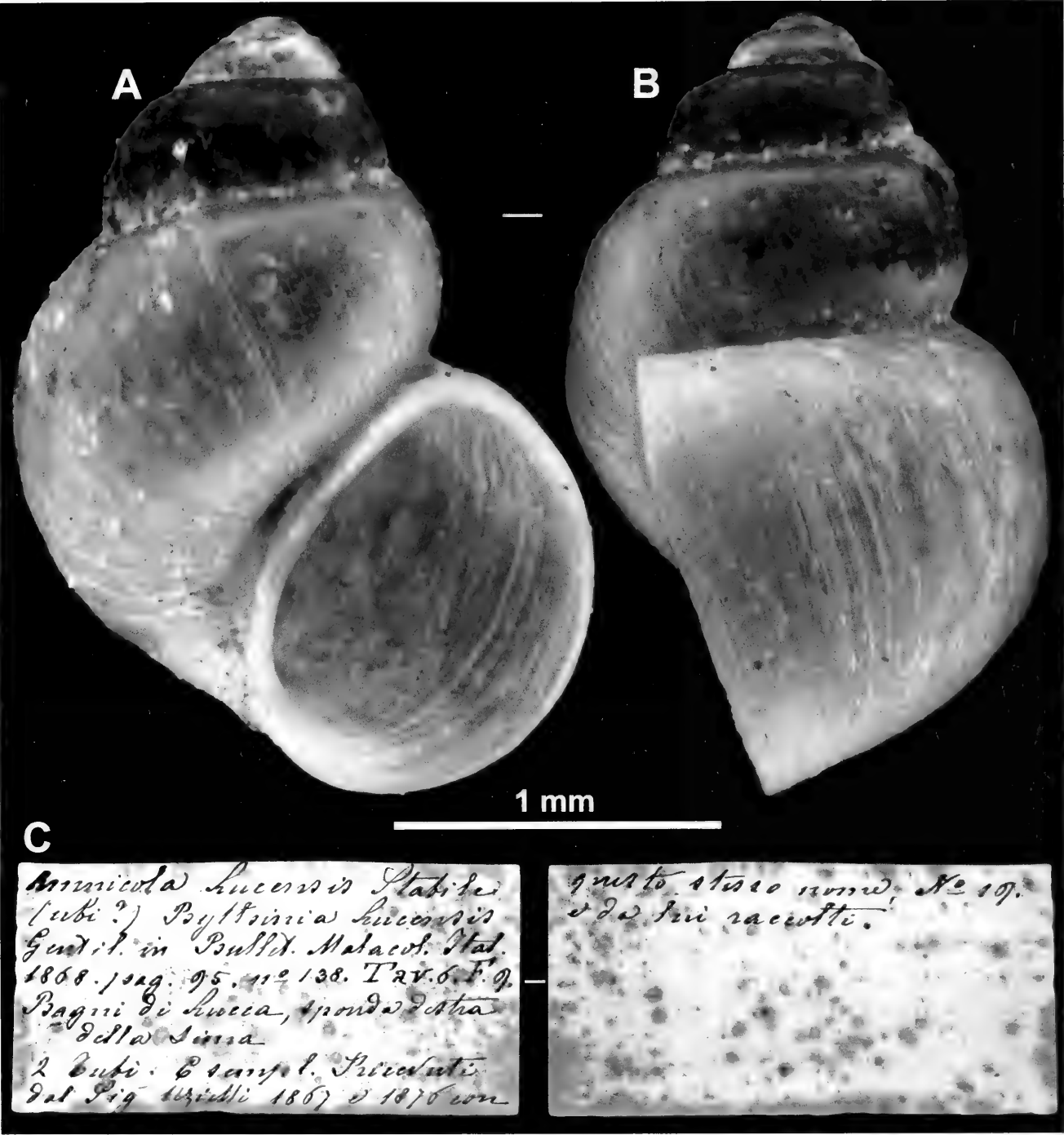


Fig. 50. *Pseudamnicola* Paulucci, 1878; A-C. Shell of *Pseudamnicola lucensis* (Issel, 1866), from "Acque Termali di S. Giuliano ... Fosso di S. Giuliano", MZUF GC/18809. A. Frontal view. B. Right lateral view. C. Front and back of the original label.

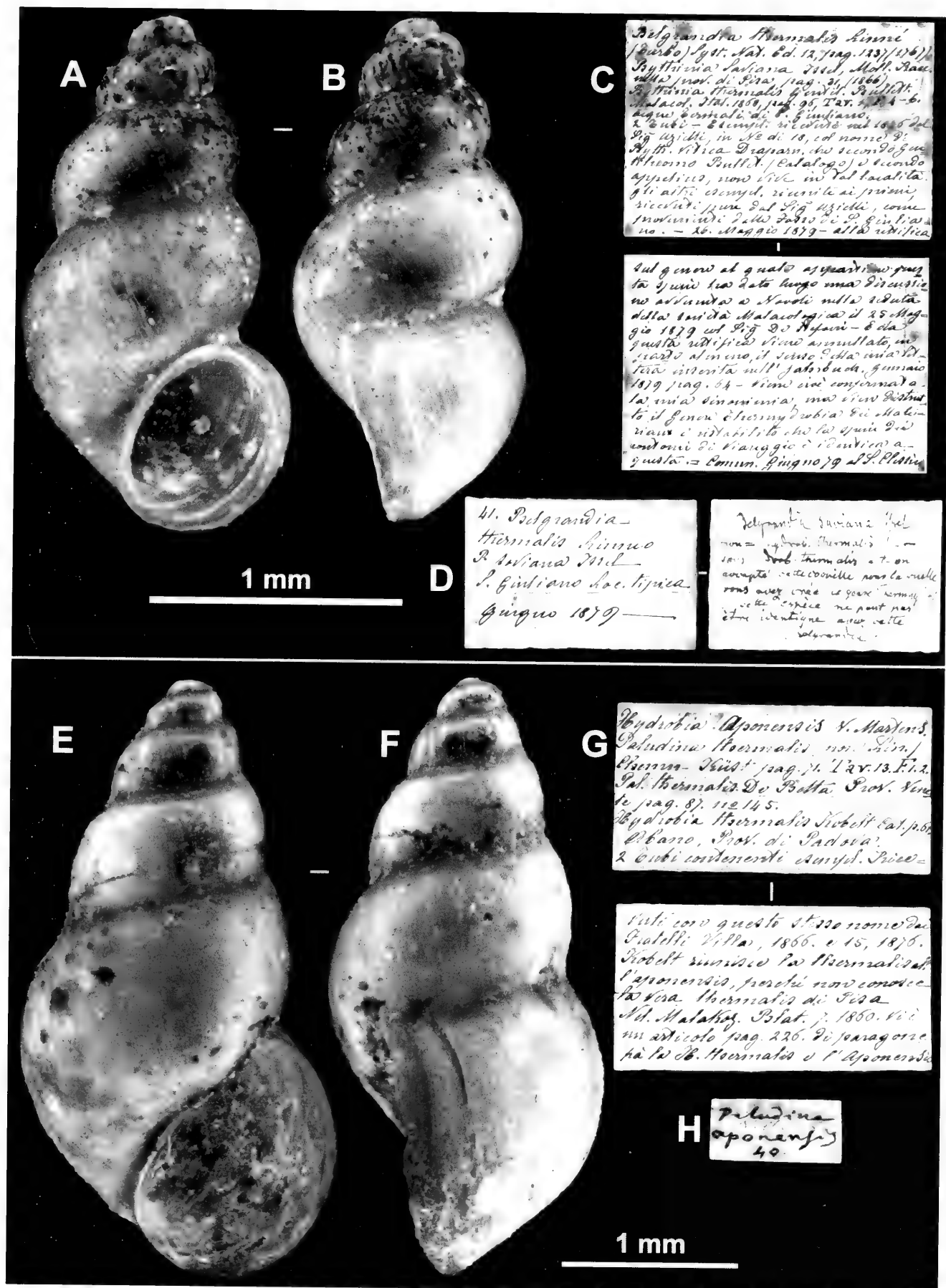


Fig. 49. *Thermhydrobia* Paulucci, 1878, synonymy not definable (*Belgrandia* or *Eupaludestrina*); **A-D**. Shell of *Belgrandia thermalis* (Linnaeus, 1767) from "Acque Termali di S. Giuliano ... Fosso di S. Giuliano", MZUF GC/13164. **A**. Frontal view. **B**. Right lateral view. **C**. Front and back of the original label in the box. **D**. Shipping label from M. Paulucci to V. Uzielli; in the back, determination of Uzielli, in the MZUF. **E-H**. Shell of *Hydrobia Aponensis* v. Martens, 1858, now *Eupaludestrina aponensis* (von Martens, 1858) from "Abano, Prov. Padova", MZUF GC/19006. **E**. Frontal view. **F**. Right lateral view. **G**. Front and back of the original label. **H**. Shipping tag handwritten by the Villa brothers.

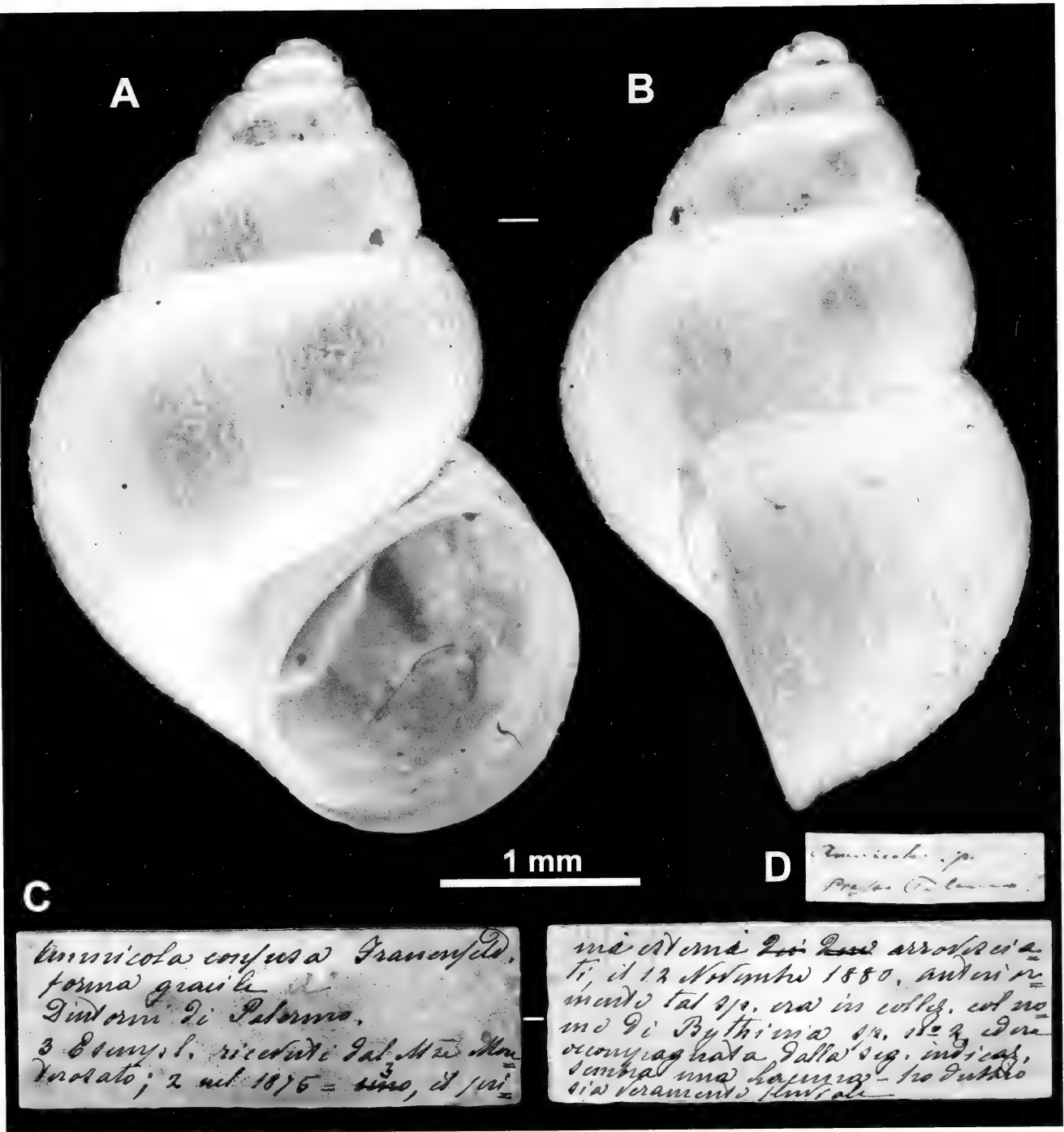


Fig. 48. *Mercuria melitensis* (Paladilhe, 1869). Shell of *Bythinia? lacunoides* Paulucci, 1878; a syntype from "Dintorni di Palermo", MZUF GC/18789. A. Frontal view. B. Right lateral view. C. Front and back of the original label. D. Shipping label of T.A. Monterosato attached to the base of the box.

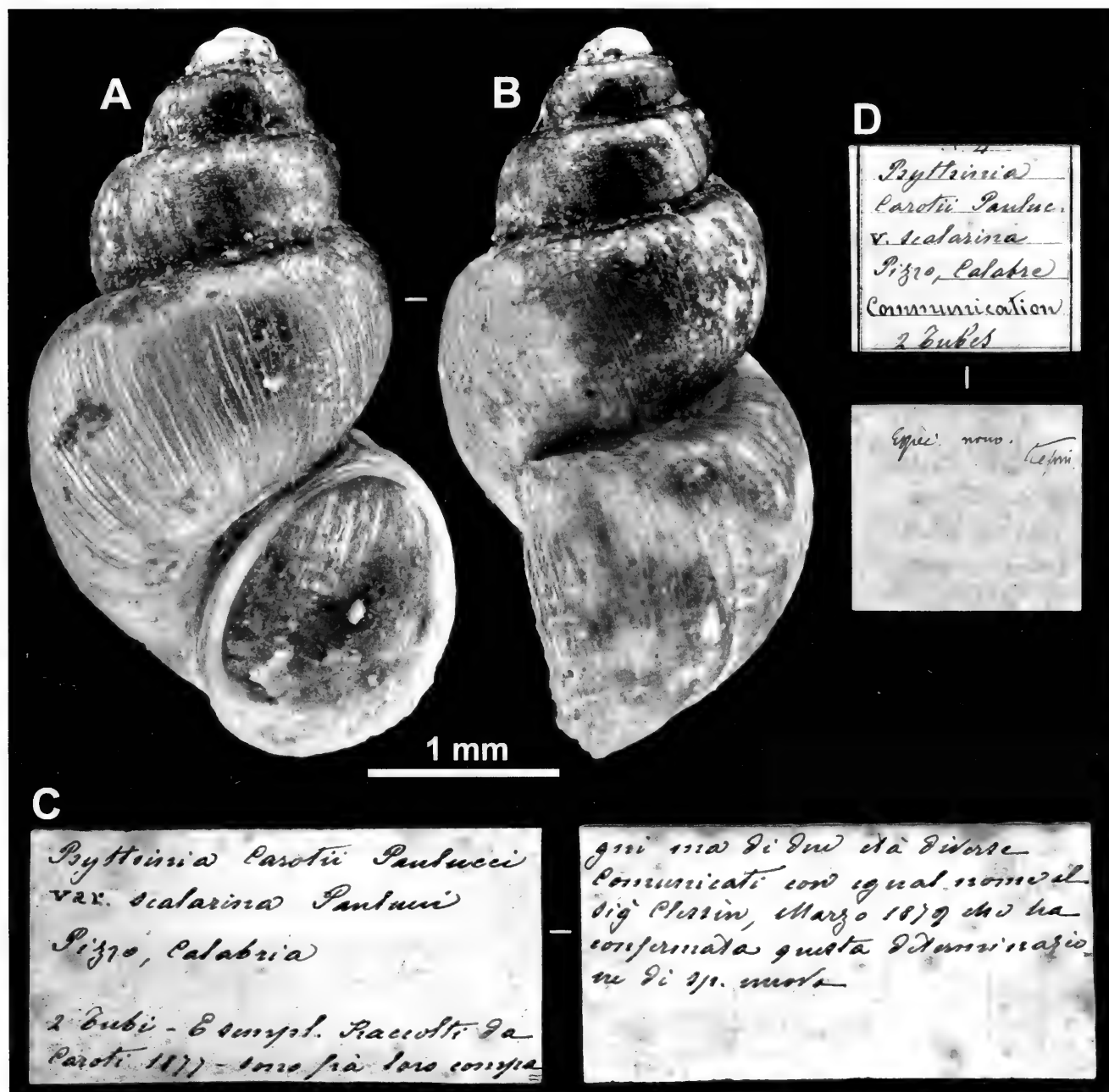


Fig. 47. *Pseudamnicola orsinii* (Küster, 1852). Shell of *Bythinia scalarina* Paulucci, 1878; a syntype from "Pizzo, Calabria", MZUF GC/13602. **A.** Frontal view. **B.** Right lateral view. **C.** Front and back of the original label. **D.** Shipping label of M. Paulucci to S. Clessin; in the back, identification of the German author, in the MZUF.

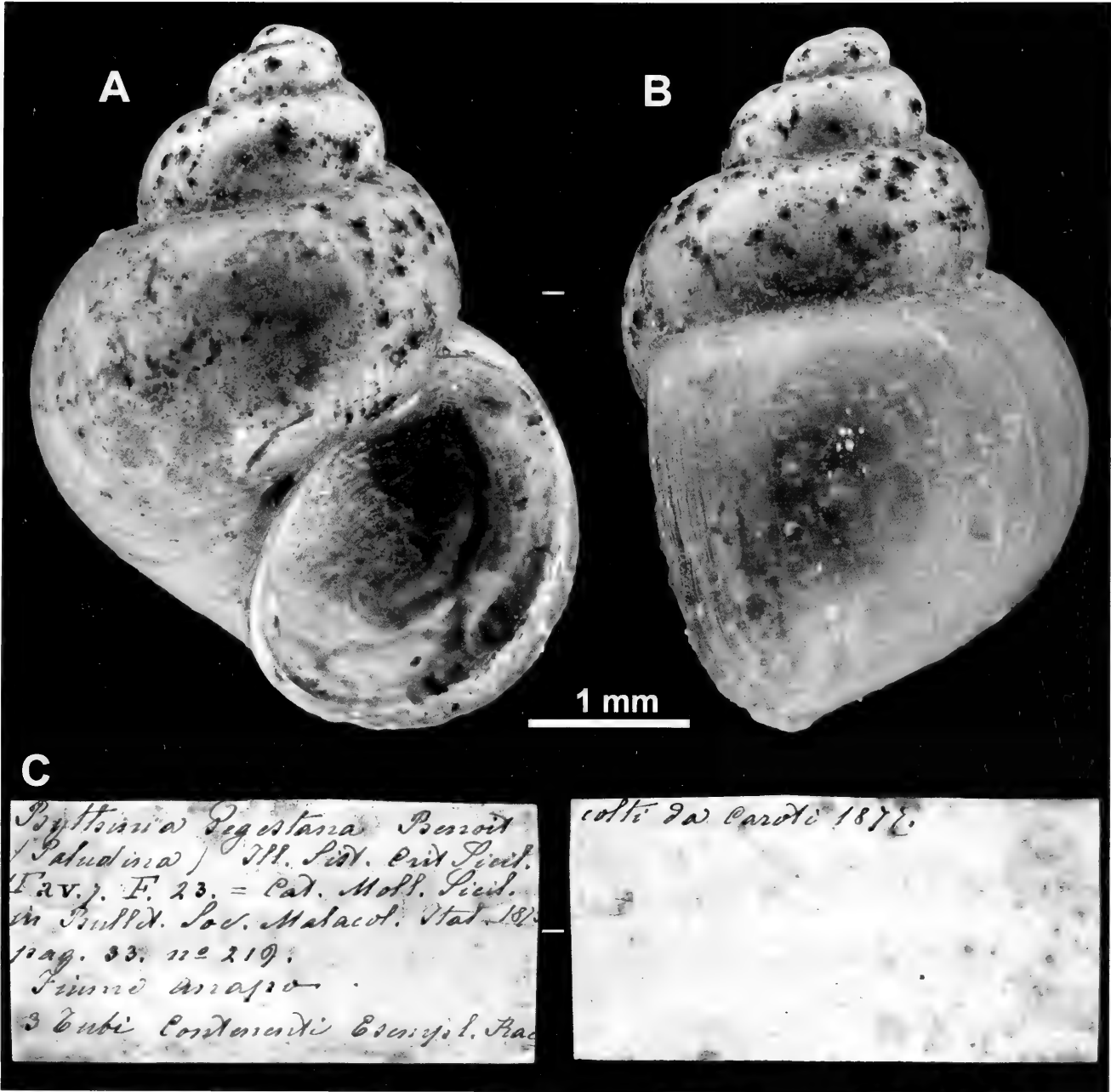


Fig. 46. *Bythinia* sp. or *Pseudobithynia* sp., species taxon inquirendum. Shell of *Bythinia Segestana* Paulucci, 1878; a syntype from "Fiume Anapo", MZUF GC/16363. **A.** Frontal view. **B.** Right lateral view. **C.** Front and back of the original label.

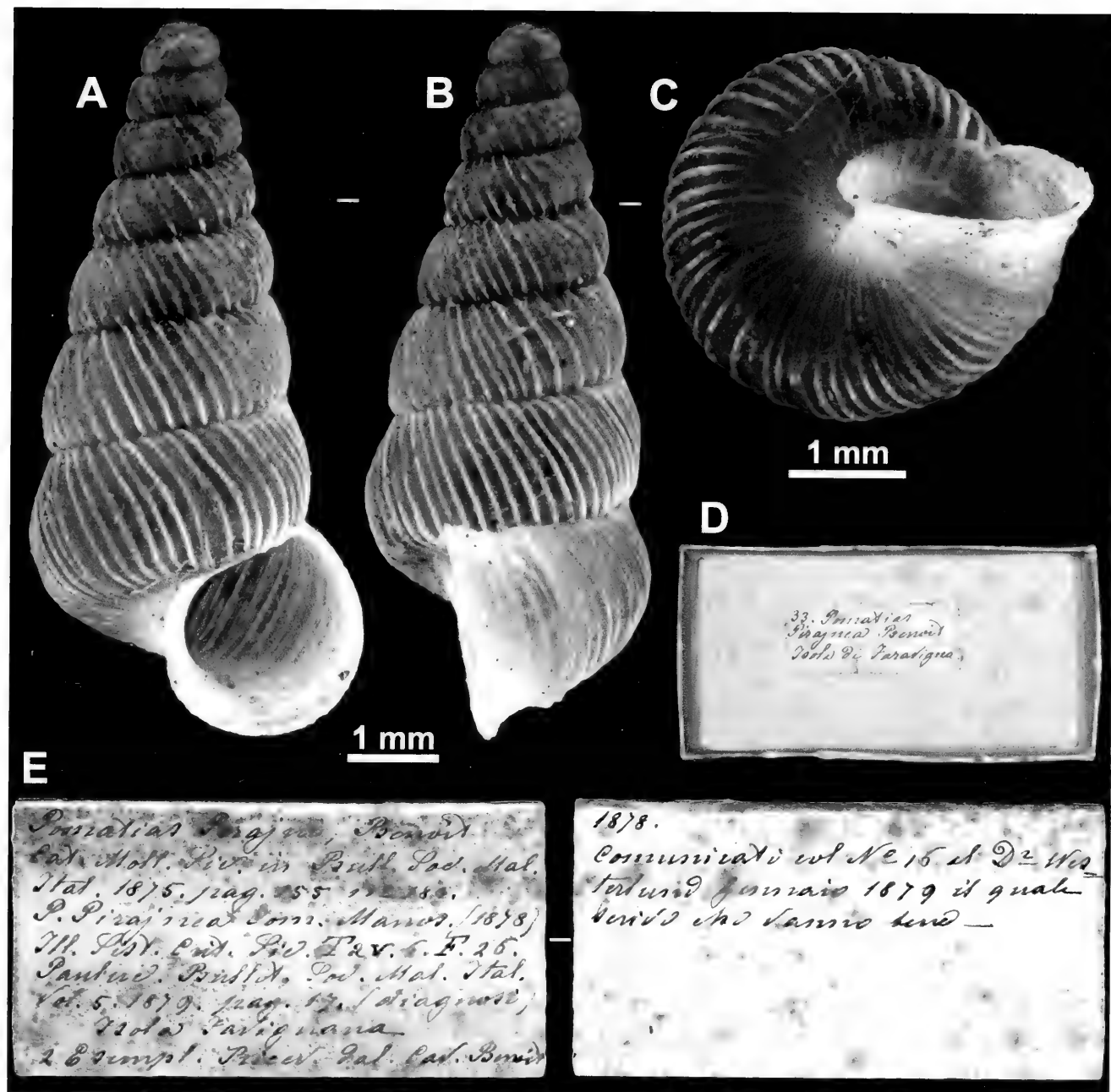


Fig. 45. *Cochlostoma (Auritus) paladilhianum* (Saint Simon, 1869), subspecies *taxon inquirendum*. Shell of *Pomatias Pirajni* Paulucci, 1878; a syntype from "Isola Favignana", MZUF GC/13693. **A.** Frontal view. **B.** Right lateral view. **C.** Upper view. **D.** Original label attached to the base of the box. **E.** Front and back of the original label.

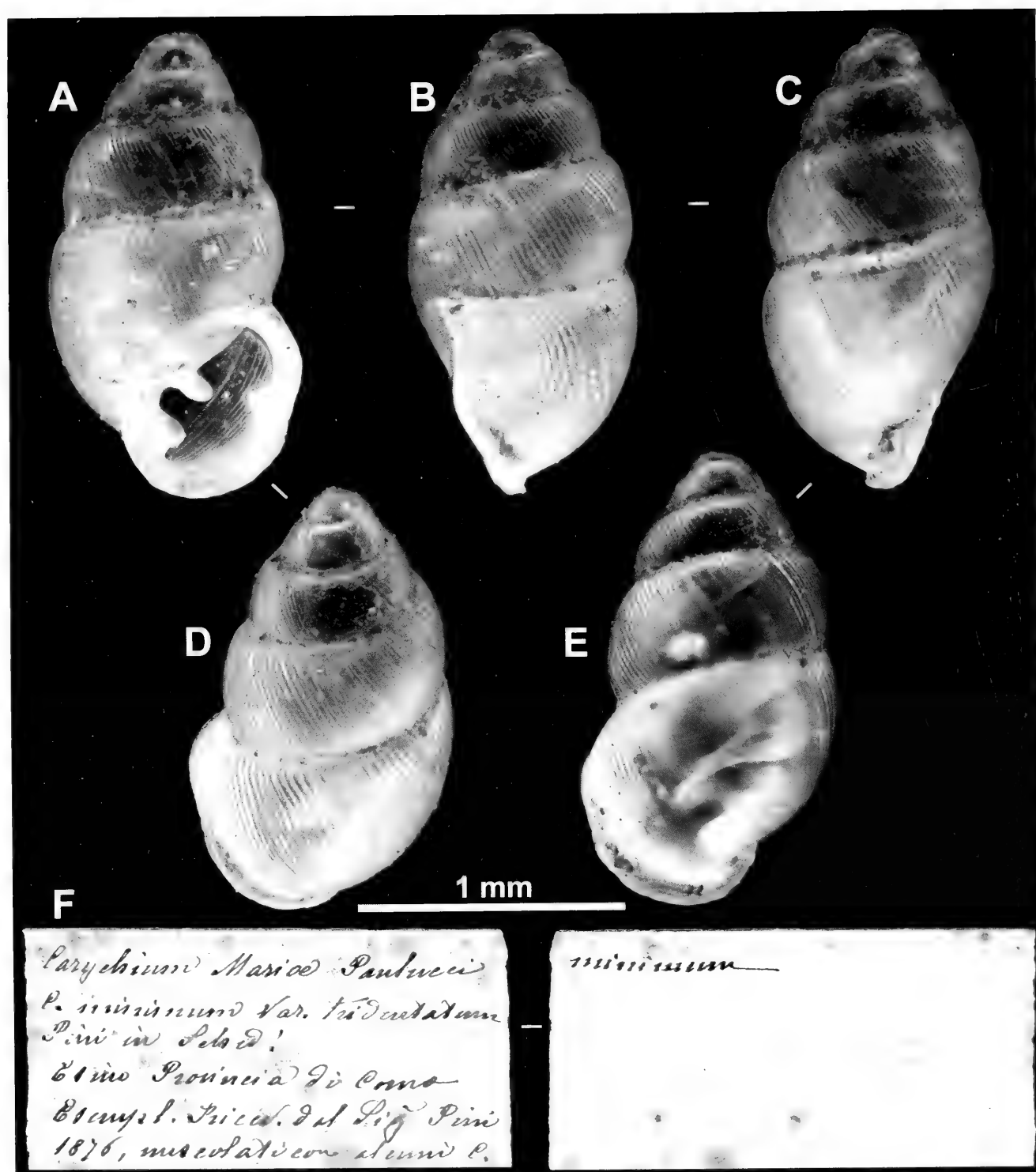


Fig. 44. *Carychium minimum* Müller, 1774. Shell of *Carychium Mariae* Paulucci, 1878; a syntype from "Esino Provincia di Como", MZUF GC/13599. A. Frontal view. B. Right lateral view. C. Left lateral view. D. Dorsal view. E. Parietal and columellar folds seen for transparency in the last whorl. F. Front and back of the original label.

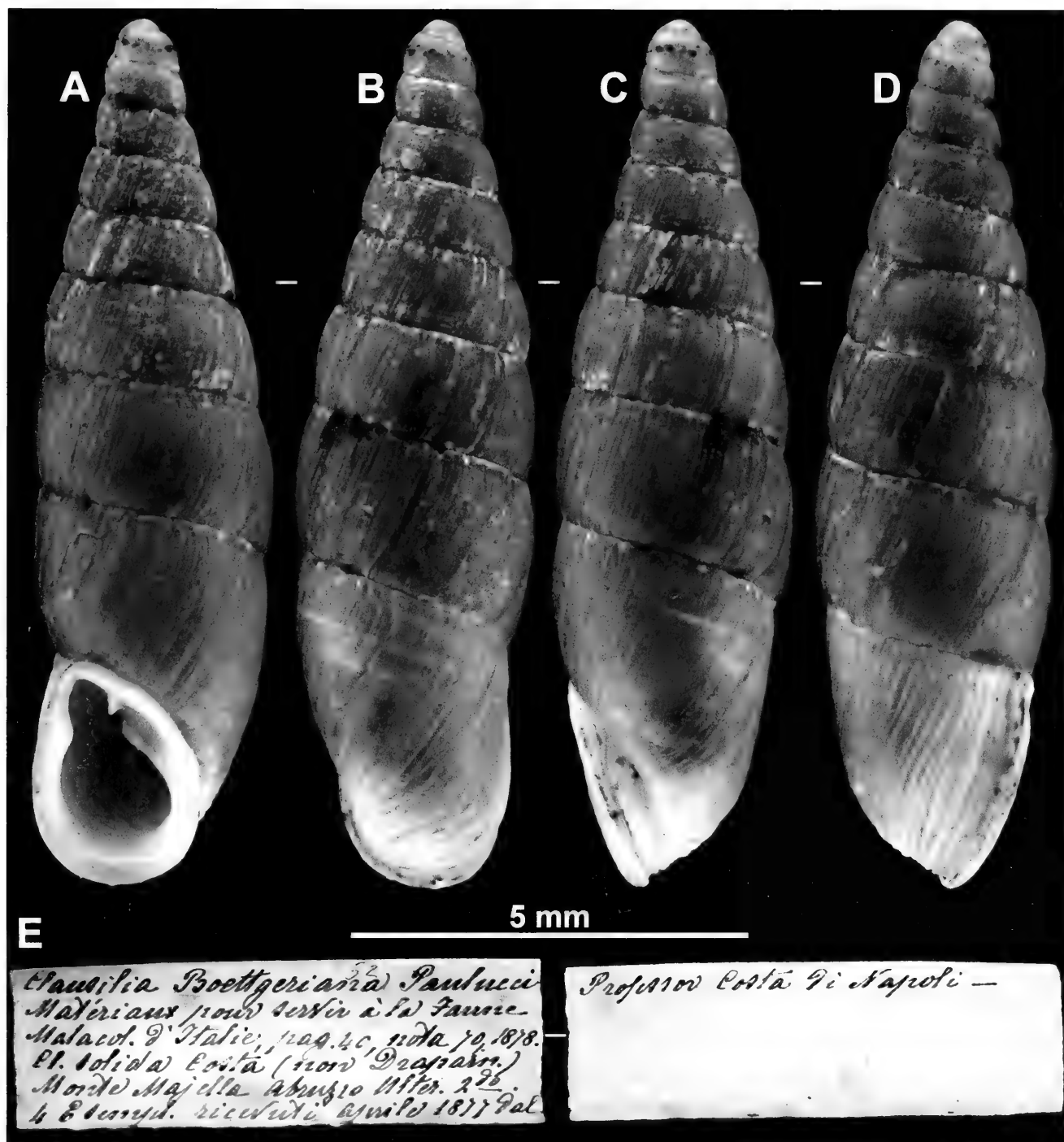


Fig. 43. *Dilataria boettgeriana* (Paulucci, 1878). Shell of *Clausilia* (*Dilataria*) *Boettgeriana* Paulucci, 1878; a syntype from "Monte Majella Abruzzo Ulter. 2^{da}", MZUF GC/13527. **A.** Frontal view. **B.** Dorsal view. **C.** Right lateral view. **D.** Left lateral view. **E.** Front and back of the original label.

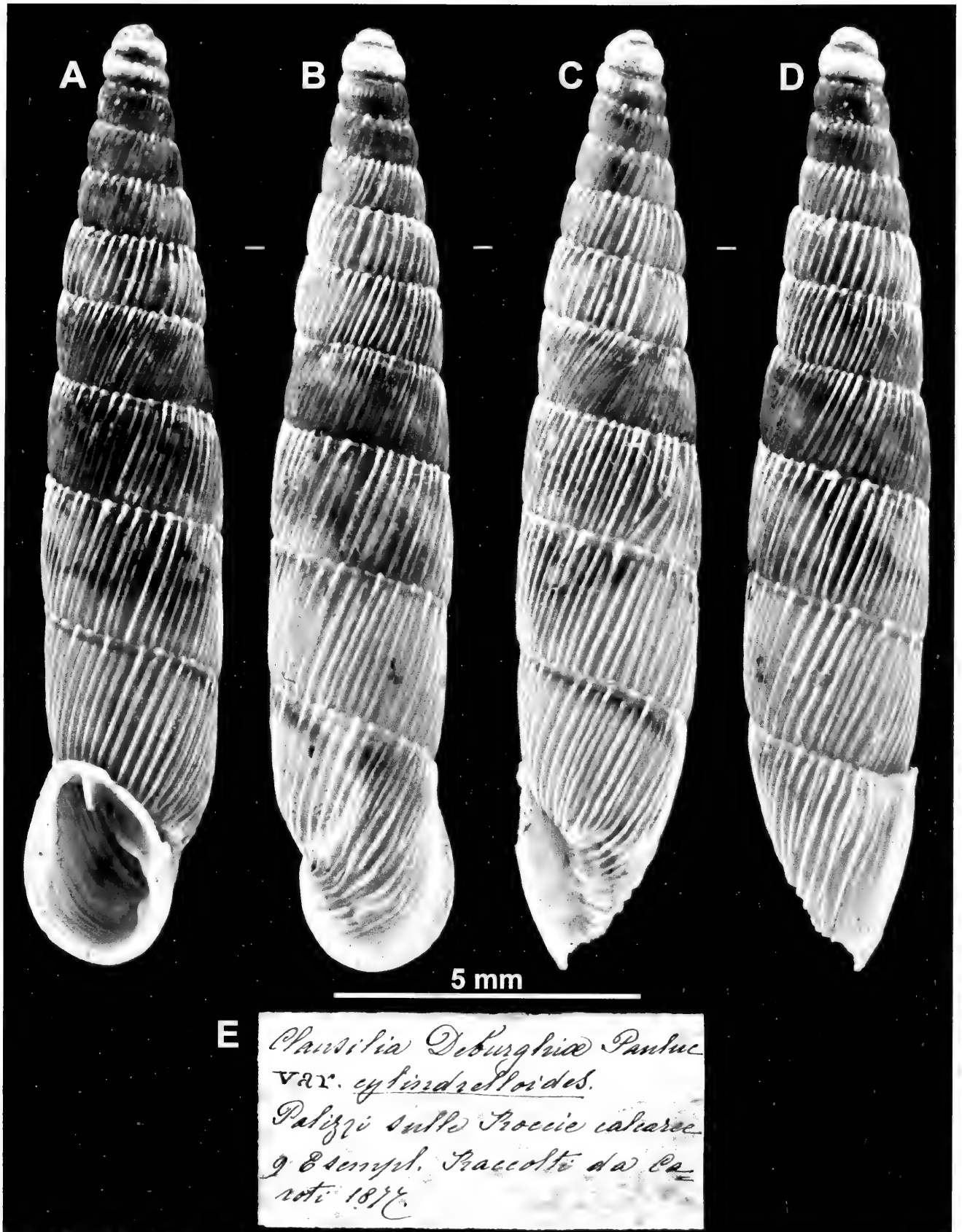


Fig. 42. *Papillifera solida deburghiae* (Paulucci, 1878). Shell of *Clausilia* (*Papillifera*) *Deburghiae* Var. *cylindrelloides* Paulucci, 1878; a syntype da "Palizzi sulle Rocce calcaree", MZUF GC/13551. **A.** Frontal view. **B.** Dorsal view. **C.** Right lateral view. **D.** Left lateral view. **E.** Original label.



Fig. 41. *Papillifera solida deburghiae* (Paulucci, 1878). Shell of *Clausilia* (*Papillifera*) *Deburghiae* Paulucci, 1878; a syntype from "Palizzi sulle Rocce calcaree", MZUF GC/13546. **A.** Frontal view. **B.** Dorsal view. **C.** Right lateral view. **D.** Left lateral view. **E.** Original label.



Fig. 40 *Papillifera papillaris transitans* (Paulucci, 1878). Shell of *Clausilia (Papillifera) transitans* Var. *gracilis* Paulucci, 1878; a syntype from "Monte Stella presso l'Eremitaggio", MZUF GC/13542. A. Frontal view. B. Dorsal view. C. Right lateral view. D. Left lateral view. E. Original label.

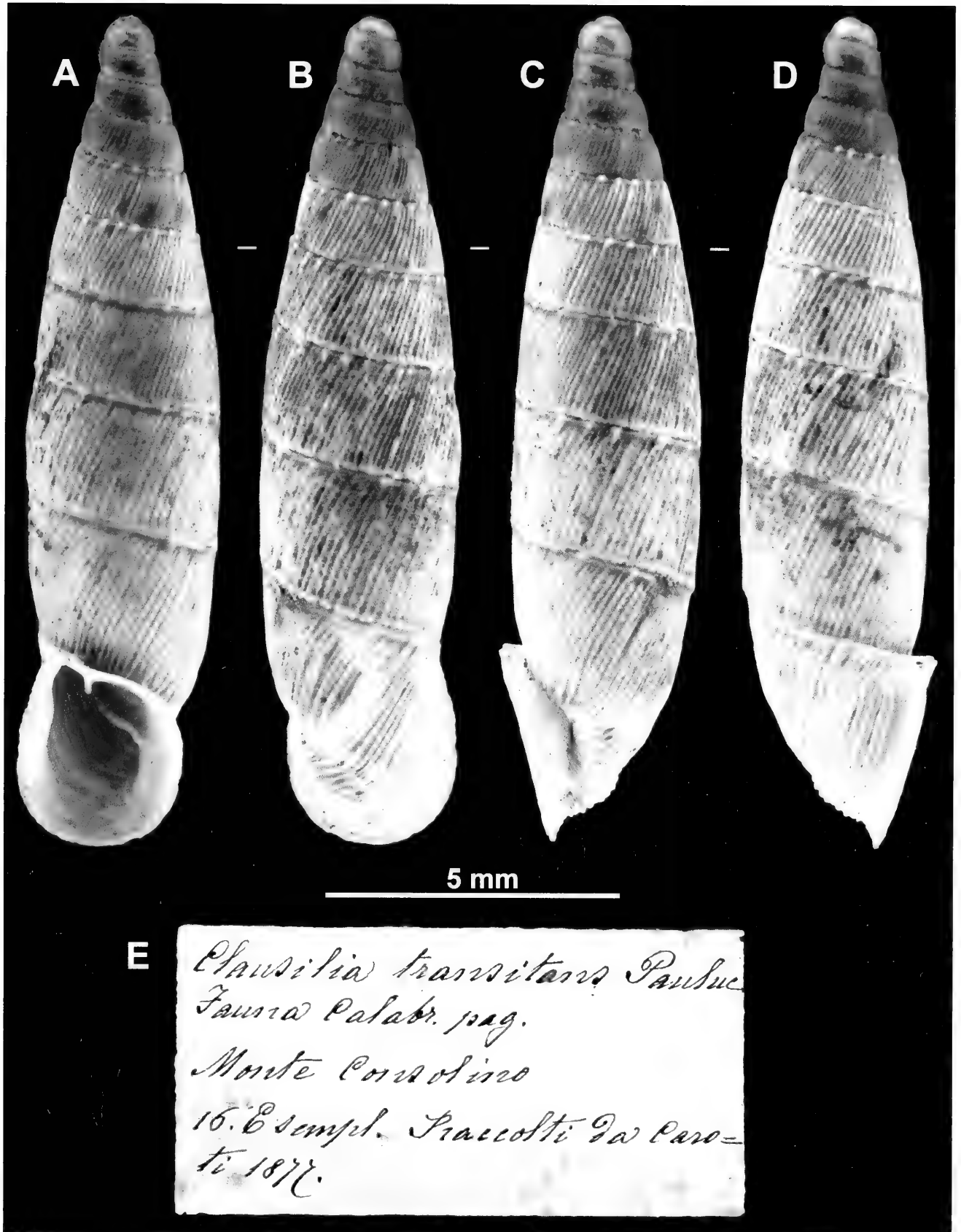


Fig. 39. *Papillifera papillaris transitans* (Paulucci, 1878). Shell of *Clausilia* (*Papillifera*) *transitans* Paulucci, 1878; a syntype from "Monte Consolino", MZUF GC/13540. **A.** Frontal view. **B.** Dorsal view. **C.** Right lateral view. **D.** Left lateral view. **E.** Original label.

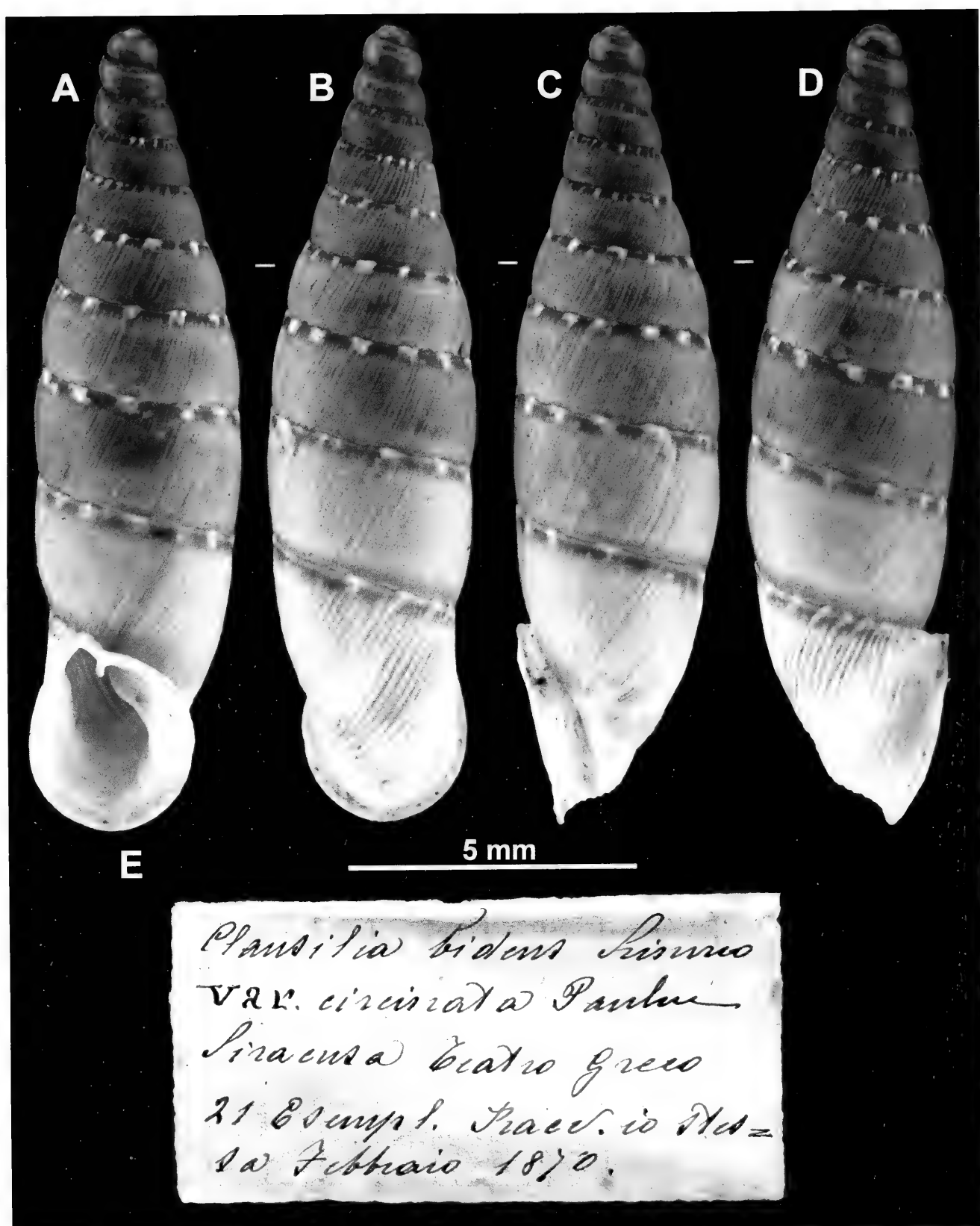


Fig. 38. *Papillifera papillaris affinis* (Philippi, 1836). Shell of *Clausilia (Papillifera) bidens* Var. *circinata* Paulucci, 1878; a syntype from "Siracusa Teatro Greco", MZUF GC/13555. A. Frontal view. B. Dorsal view. C. Right lateral view. D. Left lateral view. E. Original label.

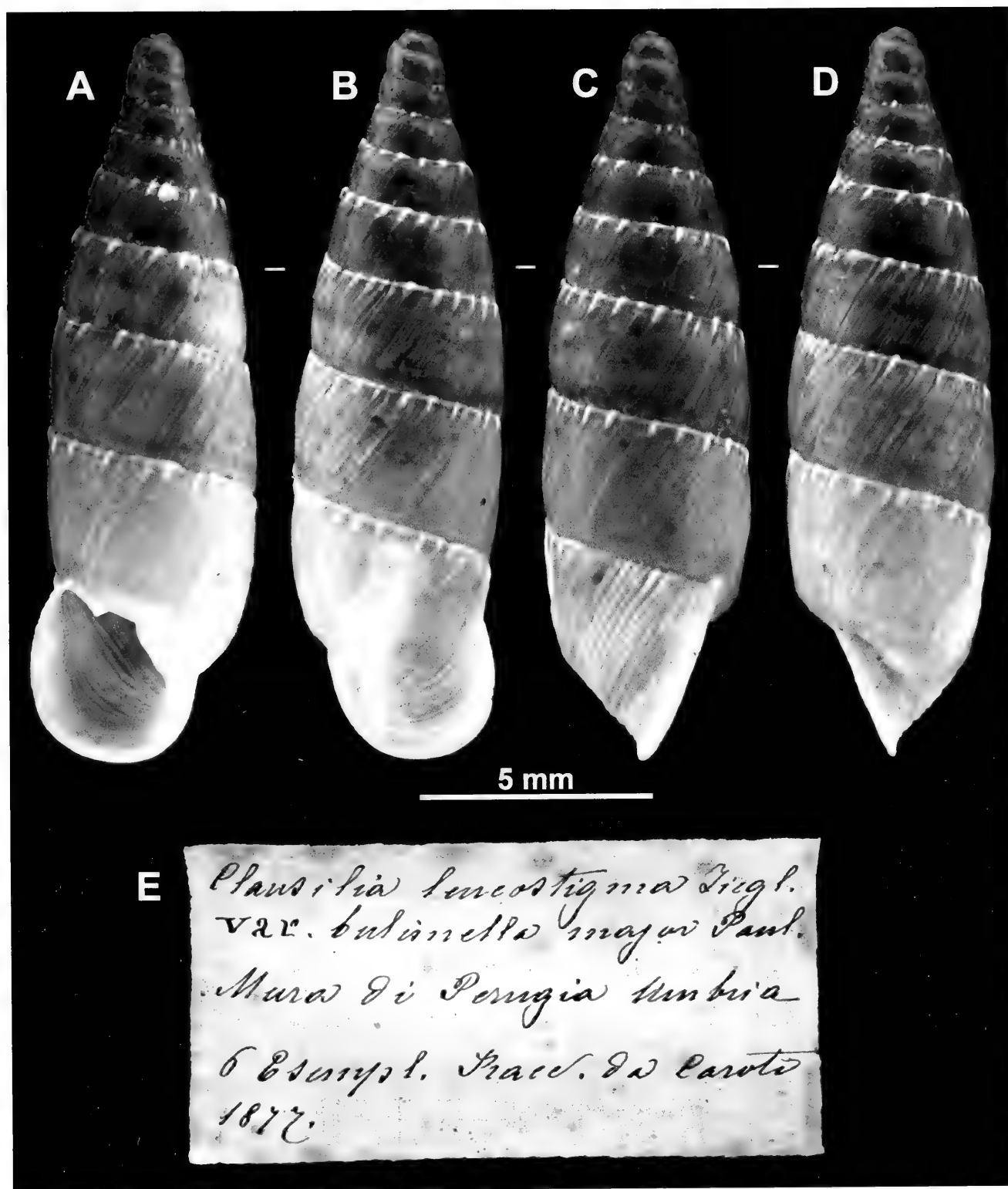


Fig. 37. *Leucostigma candidescens leucostigma* (Rossmässler, 1836). Shell of *Clausilia* (*Papillifera*) *leucostigma* Var. *bulimella* Paulucci, 1878; a syntype from "Mura di Perugia Umbria", MZUF GC/13519. **A**. Frontal view. **B**. Dorsal view. **C**. Left lateral view. **D**. Right lateral view. **E**. Original label.



Fig. 36 Subspecies: *Siciliana tiberii tiberii* (Schmidt, 1868). Shell of *Clausilia (Siciliana) Tiberiana* Paulucci, 1878; a syntype from "Dintorni di Palermo", MZUF GC/58123 **A** Frontal view. **B** Dorsal view. **C** Right lateral view. **D** Left lateral view. **E** Front and back of the original label. **F** Back of the cardboard on whose black front the specimens were glued. **G** Shipping label of I. Blanc attached to the base of the box.

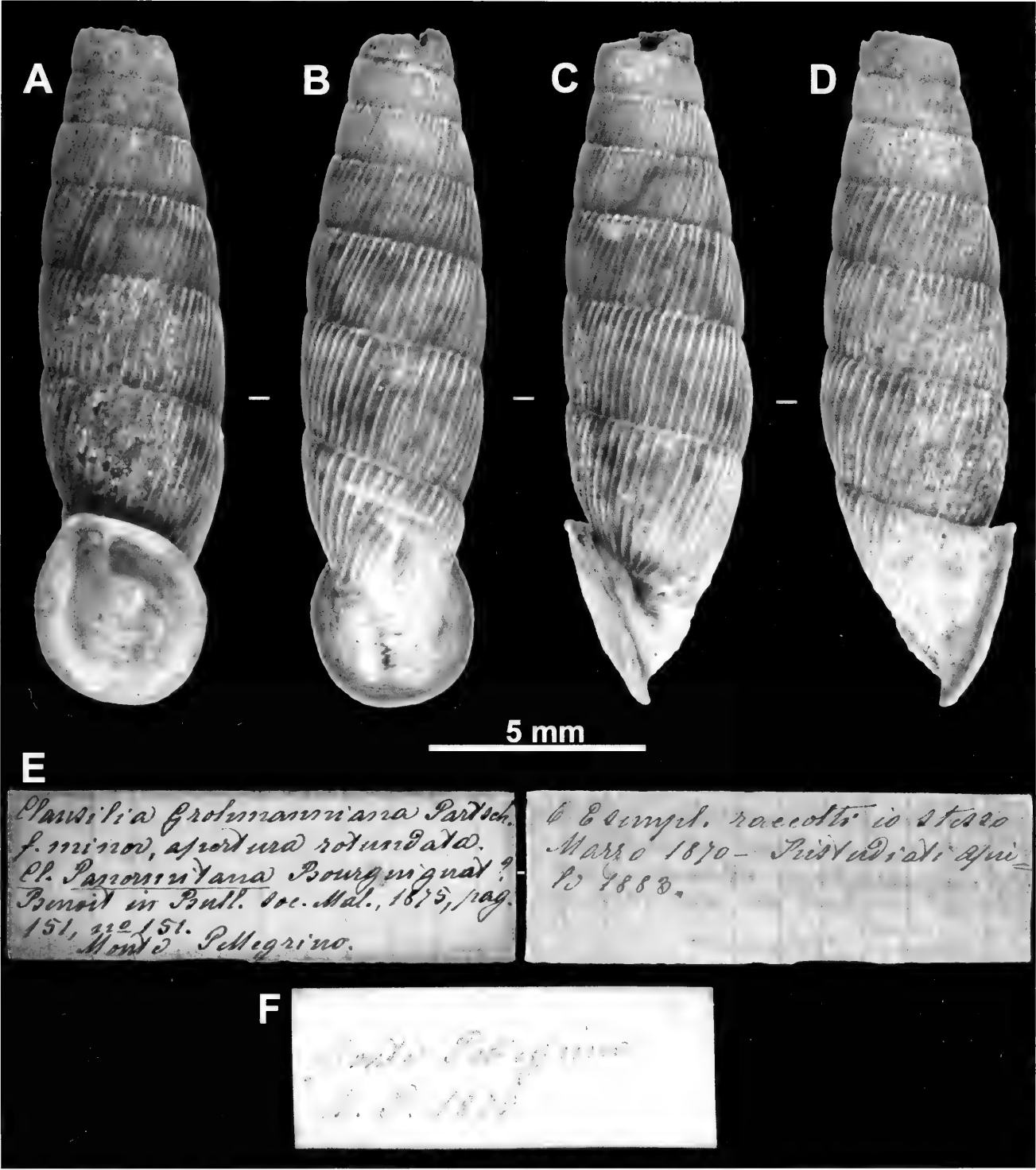


Fig. 35. Species: *Siciliaria (Siciliaria) grohmanniana* (Rossmässler, 1836). Shell of *Clausilia (Siciliaria) Grohmanniana* Var. *Panormitana* Paulucci, 1878; a syntype from "Monte Pellegrino", MZUF GC/60962. **A.** Frontal view. **B.** Dorsal view. **C.** Right lateral view. **D.** Left lateral view. **E.** Front and back of the original label. **F.** Back of the cardboard on whose black front the specimens were glued.

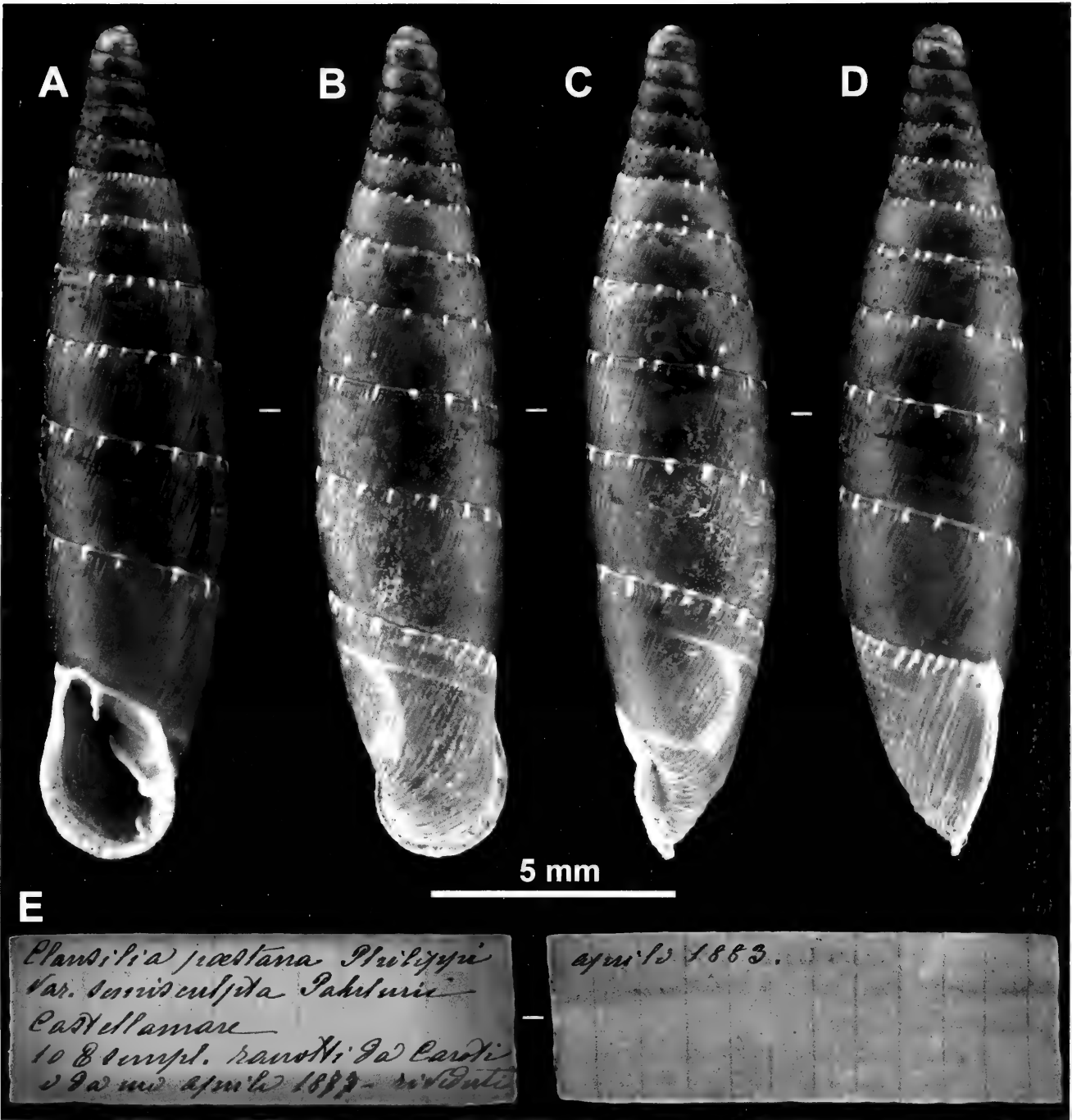


Fig. 34. *Siciliaria (Stigmatica) paestana paestana* (Philippi, 1836). Shell of *Clausilia (Delima) Paestana* Var. *semisculpta* Paulucci, 1878; a syntype from "Castellamare", MZUF GC/13503. **A**. Frontal view. **B**. Dorsal view. **C**. Right lateral view. **D**. Left lateral view. **E**. Front and back of the original label.

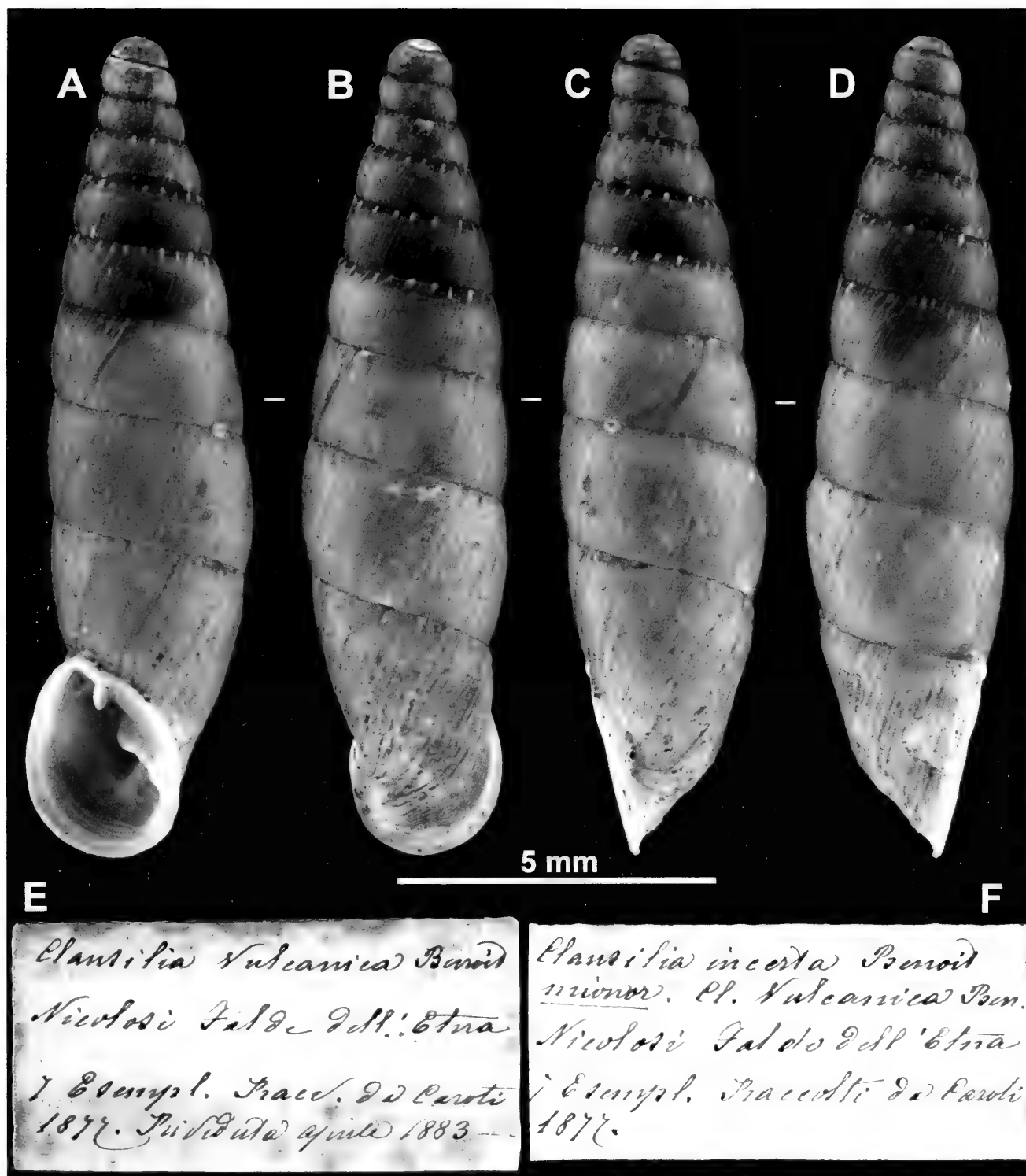


Fig. 33. *Siciliaria (Stigmatica) vulcanica vulcanica* (Paulucci, 1878). Shell of *Clausilia (Delima) vulcanica* Paulucci, 1878; a syntype from "Nicosia Falde dell'Etna", MZUF GC/58270. A. Frontal view. B. Dorsal view. C. Right lateral view. D. Left lateral view. E. The most recent original label in the box F. The first original label in the box.

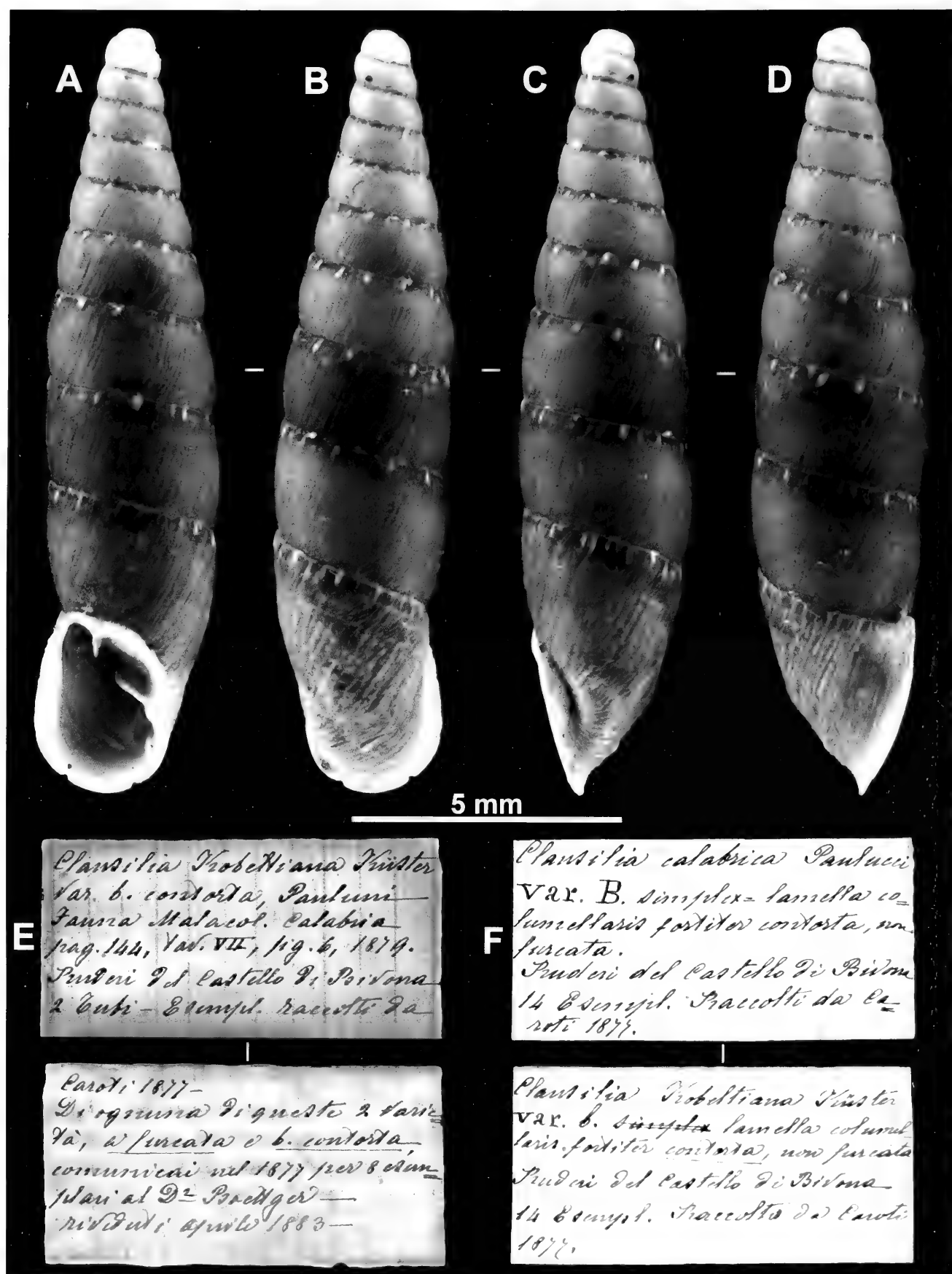


Fig. 32. *Siciliana (Stigmatica) kobeltiana* (Küster, 1876). Shell of *Clausilia (Delima) Kobeltiana* Var. *contorta* Paulucci, 1878; a syntype from "Ruderi del Castello di Bivona", MZUF GC/13506. **A**. Frontal view. **B**. Dorsal view. **C**. Right lateral view. **D**. Left lateral view. **E**. Front and back of the most recent original label in the box. **F**. Front and back of the first original label in the box.

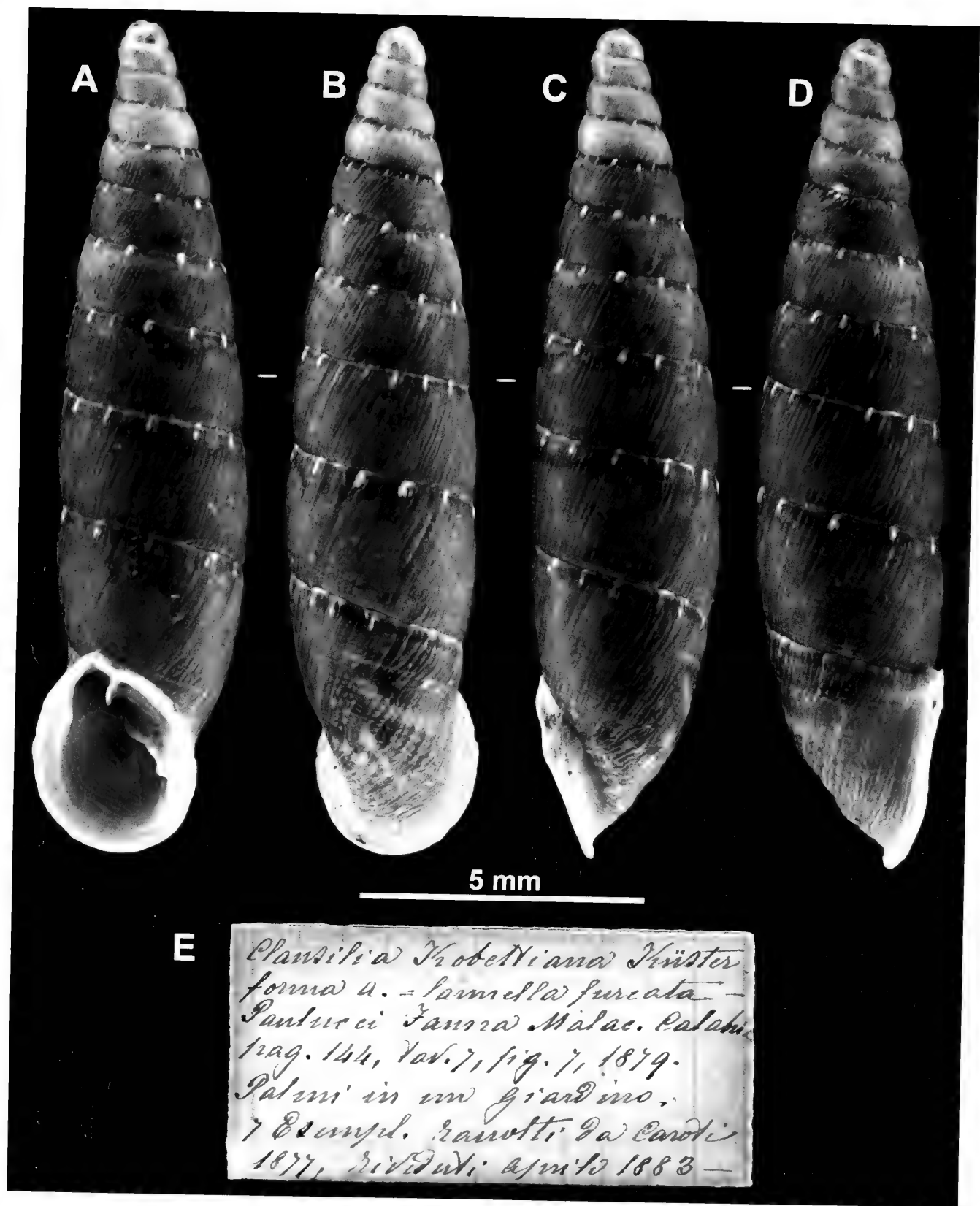


Fig. 31. *Siciliaria (Stigmatica) vulcanica vulcanica* (Paulucci, 1878). Shell of *Clausilia (Delima) Kobeltiana* Var. *furcata* Paulucci, 1878; a syntype from "Palmi in un giardino", MZUF GC/13514. **A.** Frontal view. **B.** Dorsal view. **C.** Right lateral view. **D.** Left lateral view. **E.** Original label.

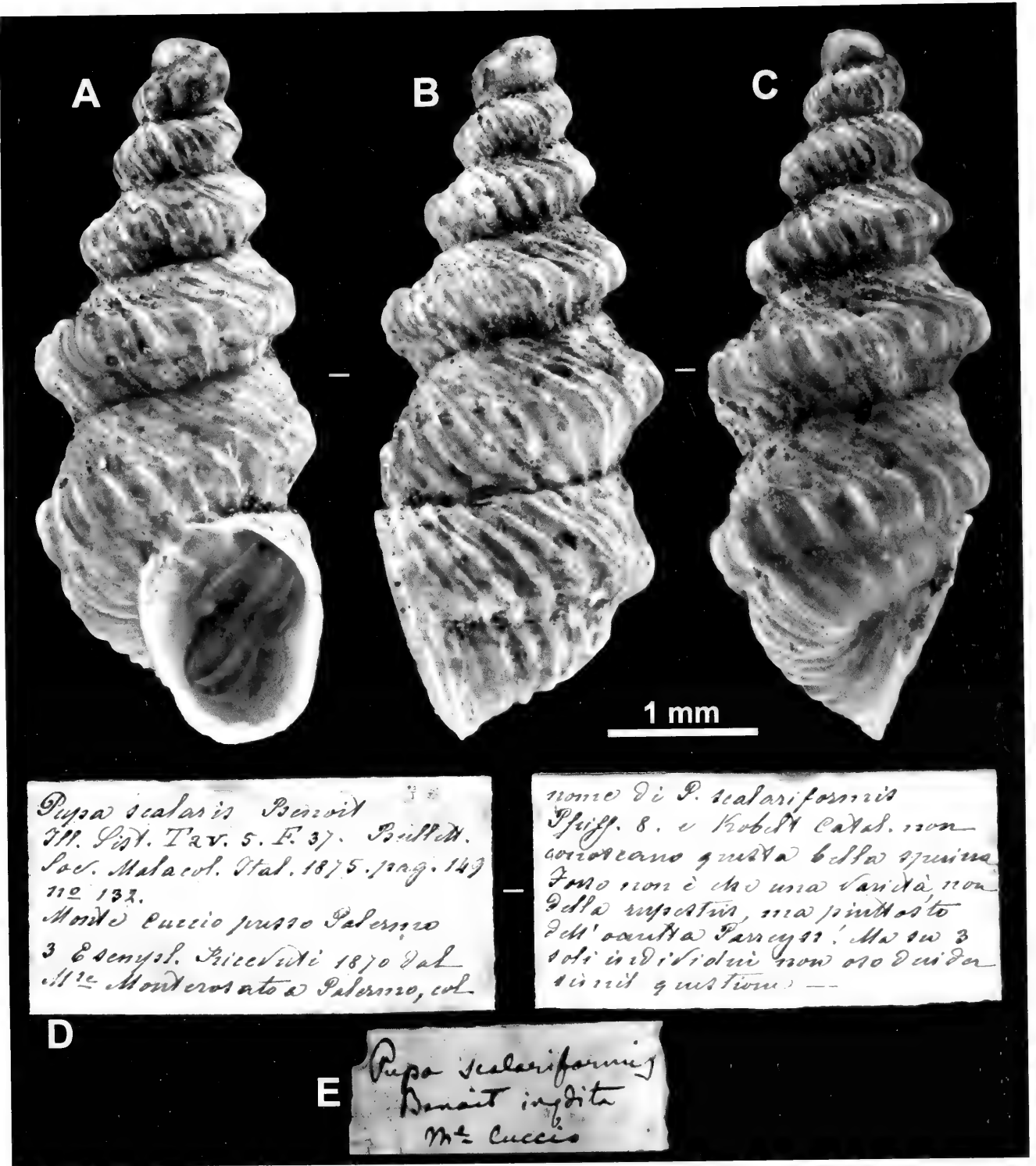


Fig. 30. *Rupestrella occulta* (Rossmässler, 1839), subspecies *taxon inquirendum*. Shell of *Pupa (Torquilla) scalaris* Paulucci, 1878; a syntype from "Monte Cuccio presso Palermo", MZUF GC/17758. **A**. Frontal view. **B**. Right lateral view. **C**. Left lateral view. **D**. Front and back of the original label. **E**. Shipping label of T.A. Monterosato attached to the base of the box.

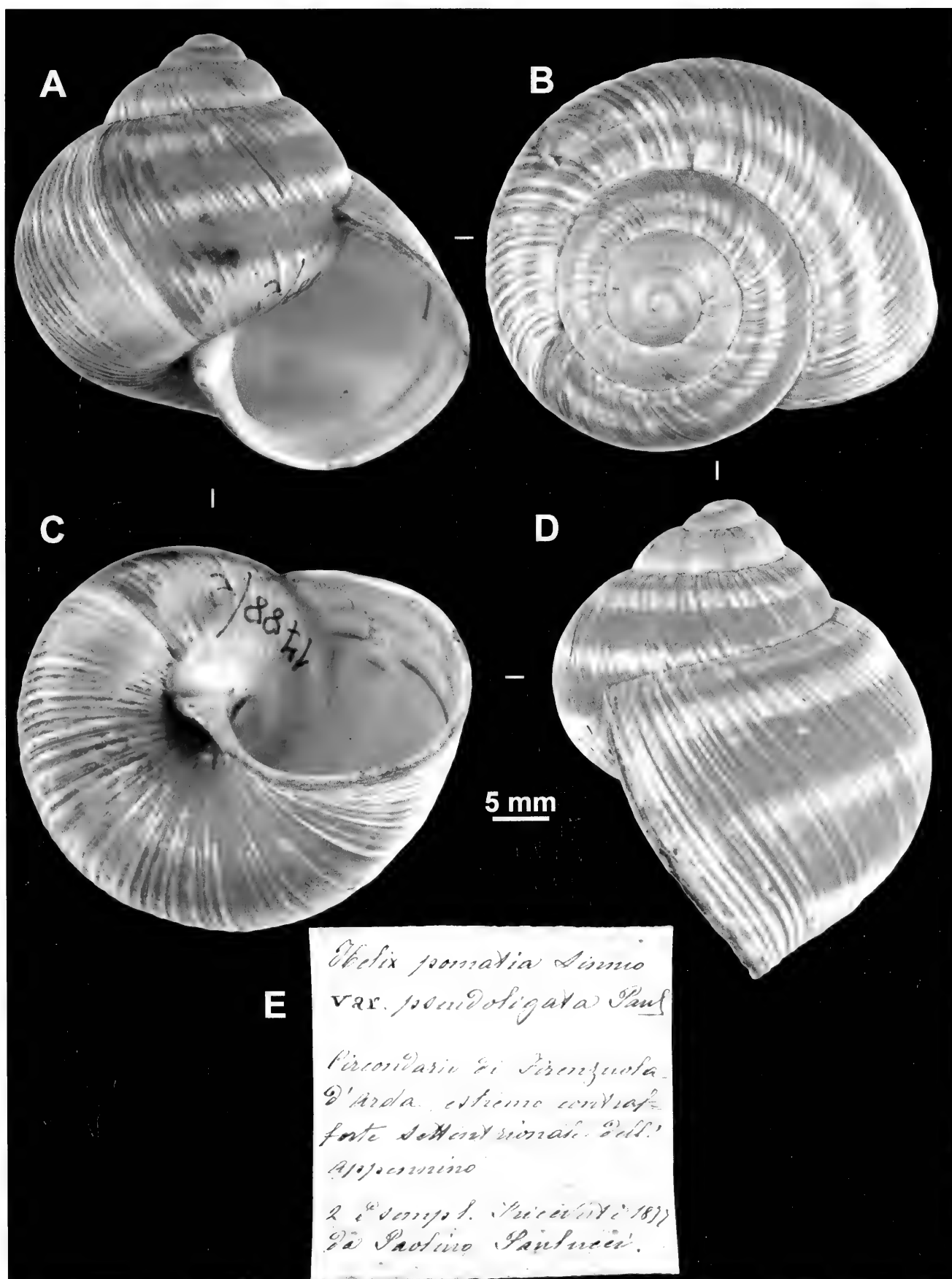


Fig. 29. *Helix (Helix) cf. pomatia* Linnaeus, 1758. Shell of *Helix (Helicogena) pomatia* Var. *pseudoligata* Paulucci, 1878; a syntype from "Frenzuola d'Arda", MZUF GC/1788. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Original label.

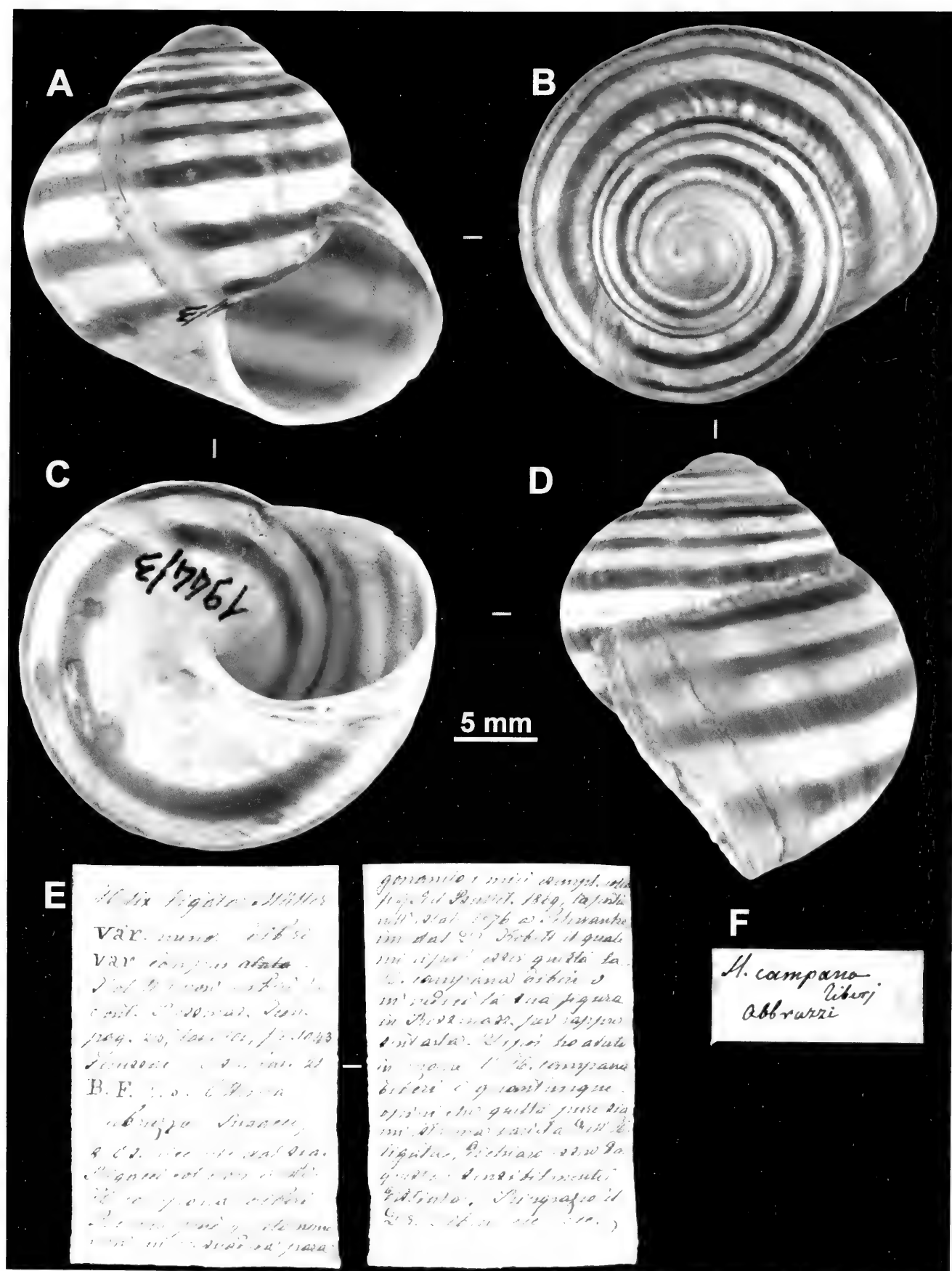


Fig. 28. *Helix (Helix) pomatella* Kobelt, 1876. Shell of *Helix (Helicogena) ligata* Var. *Delpretiana* Paulucci, 1878; a syntype from "Abruzzo", MZUF GC/1944. **A**. Frontal view **B**. Upper view **C**. Lower view **D**. Right lateral view **E**. Front and back of the original label **F**. Shipping label of G. Rigacci attached to the base of the box

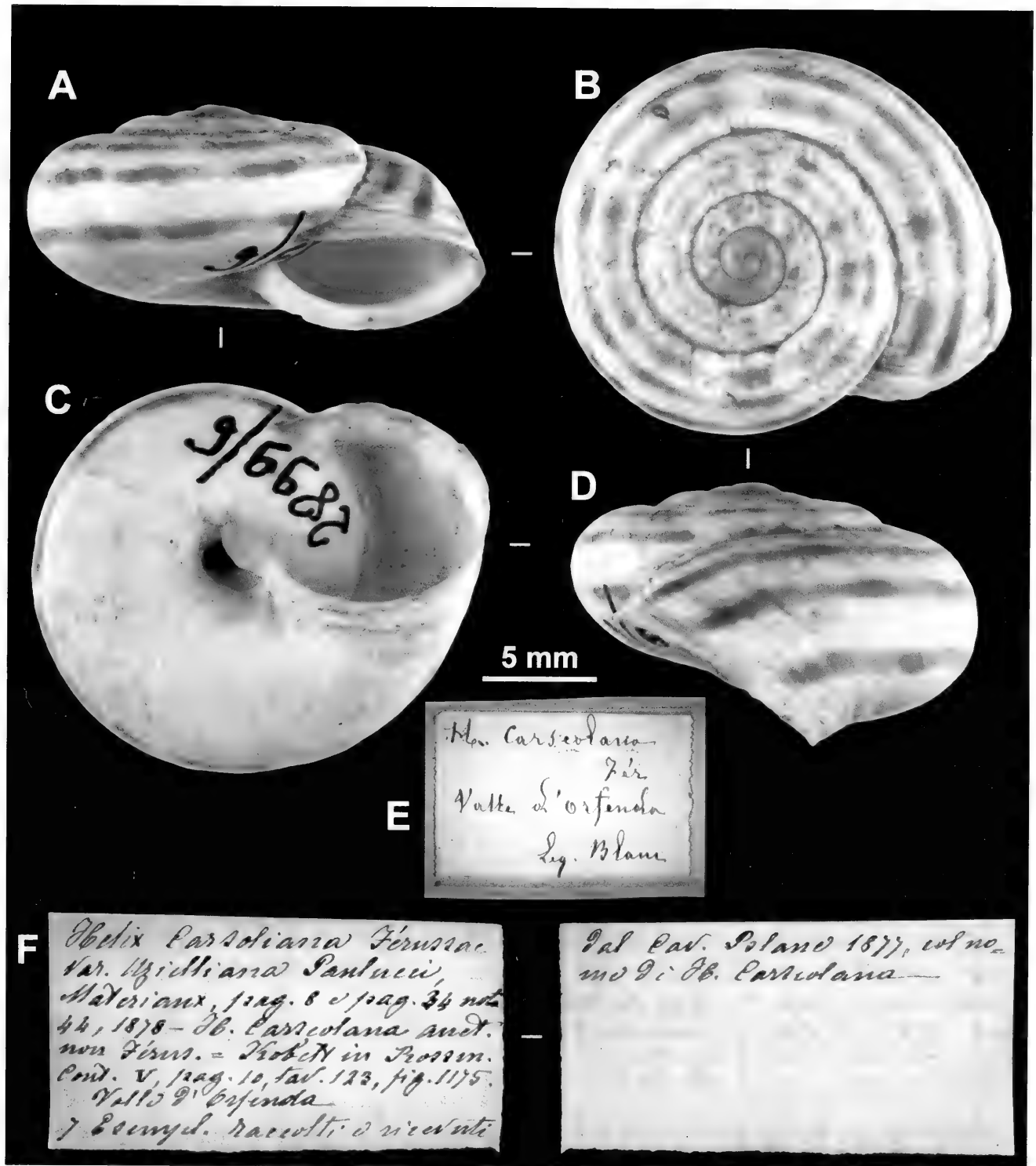


Fig. 27. *Marmorana (Ambigua) signata recondita* (Westerlund, 1876). Shell of *Helix (Iberus) caracolina* Var. *Uzielliana* Paulucci, 1878; a syntype from "Valle dell'Orfenda", MZUF GC/2899. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Shipping label of I. Blanc attached to the base of the box. **F.** Front and back of the original label.

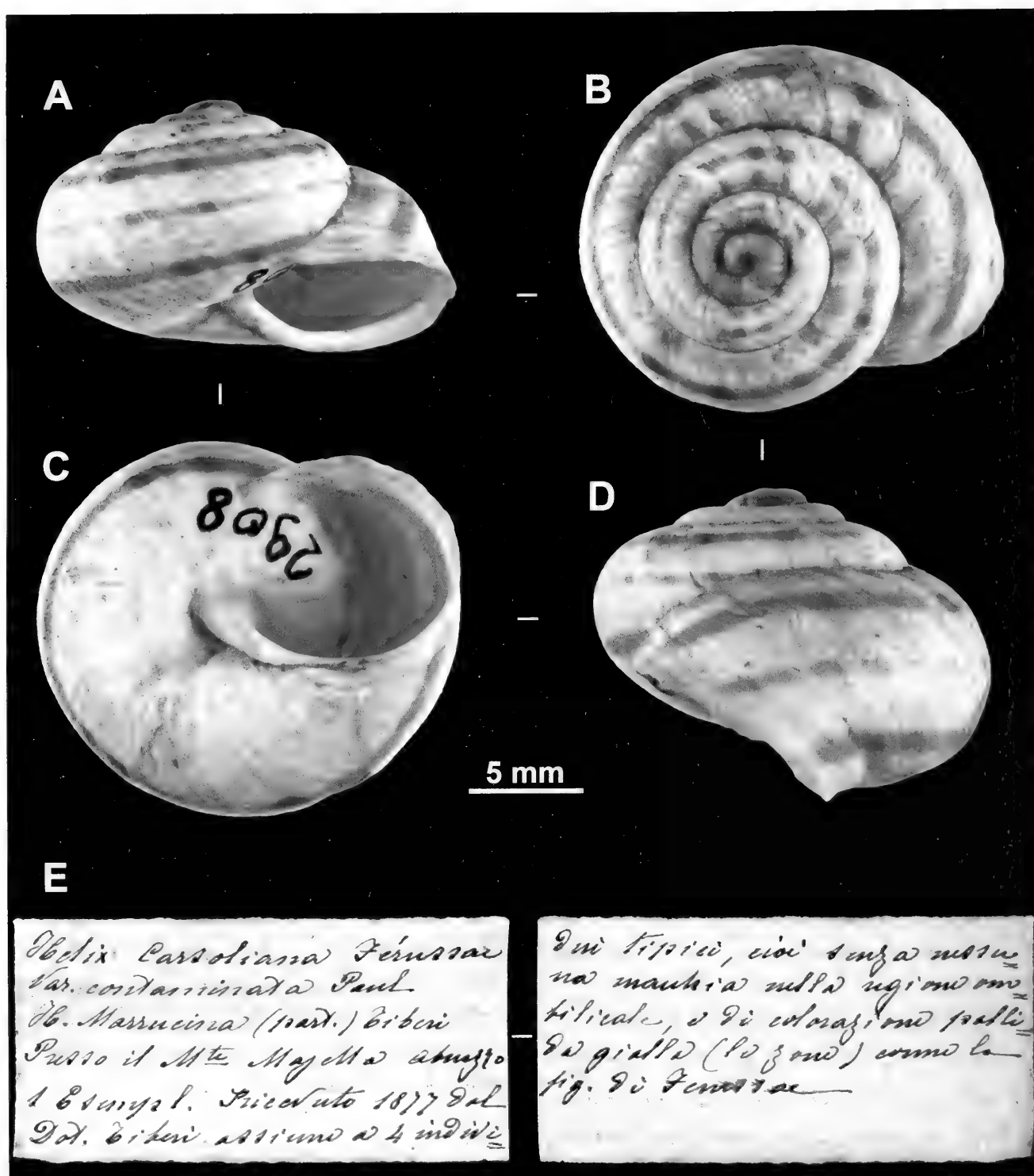


Fig. 26 *Marmorana (Ambigua) signata recondita* (Westerlund, 1876). Shell of *Helix (Iberus) carsoliana* Var. *contaminata* Paulucci, 1878; a syntype from "Presso il Monte Maiella", MZUF GC/2908. **A**. Frontal view. **B**. Upper view. **C**. Lower view. **D**. Right lateral view. **E**. Front and back of the original label

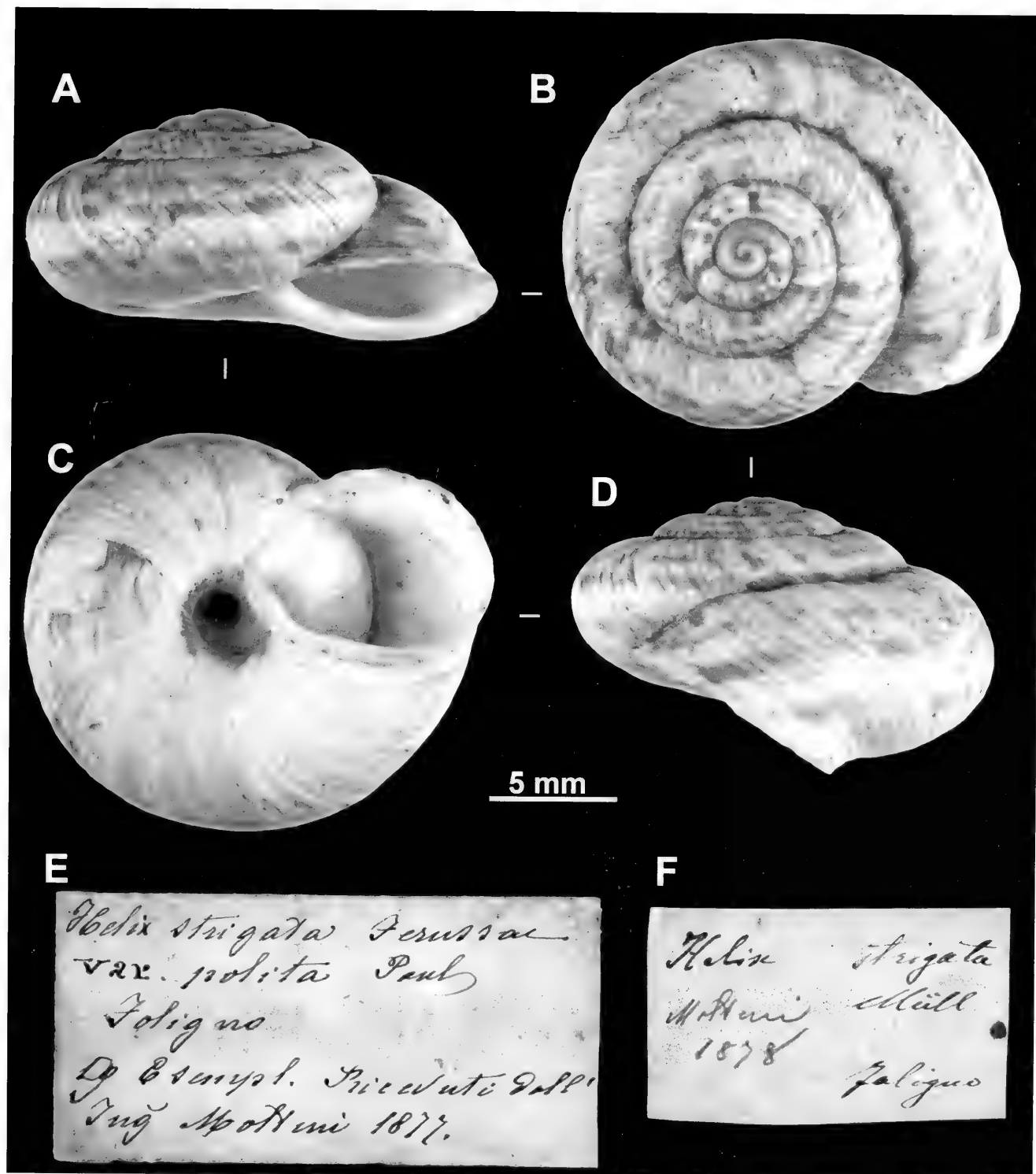


Fig. 25. *Marmorana (Ambigua) signata umbrica* (Mabille, 1867). Shell of *Helix (Iberus) strigata* Var. *polita* Paulucci, 1878; a syntype from "Foligno", MZUF GC/13472. A. Frontal view. B. Upper view. C. Lower view. D. Right lateral view E. Original label. F. Shipping label of L. Molteni attached to the base of the box.

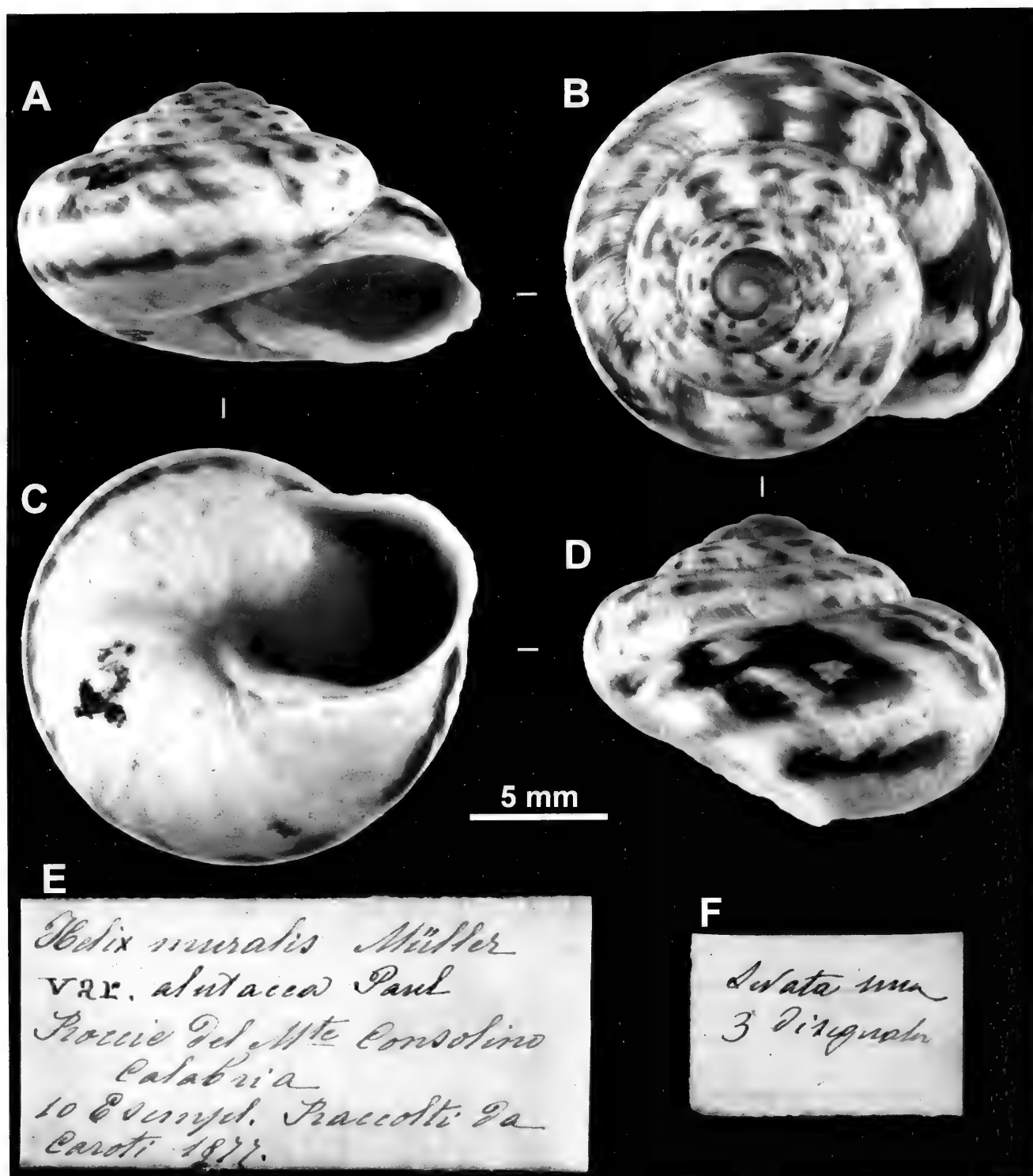


Fig. 24. *Murella muralis* (Müller, 1774), subspecies *taxon inquirendum*. Shell of *Helix (Iberus) muralis* Var. *alutacea* Paulucci, 1878; a syntype from "Roccie del Monte Consolino Calabria", MZUF GC/60606. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Original label. **F.** Second label with additional annotations by Paulucci.

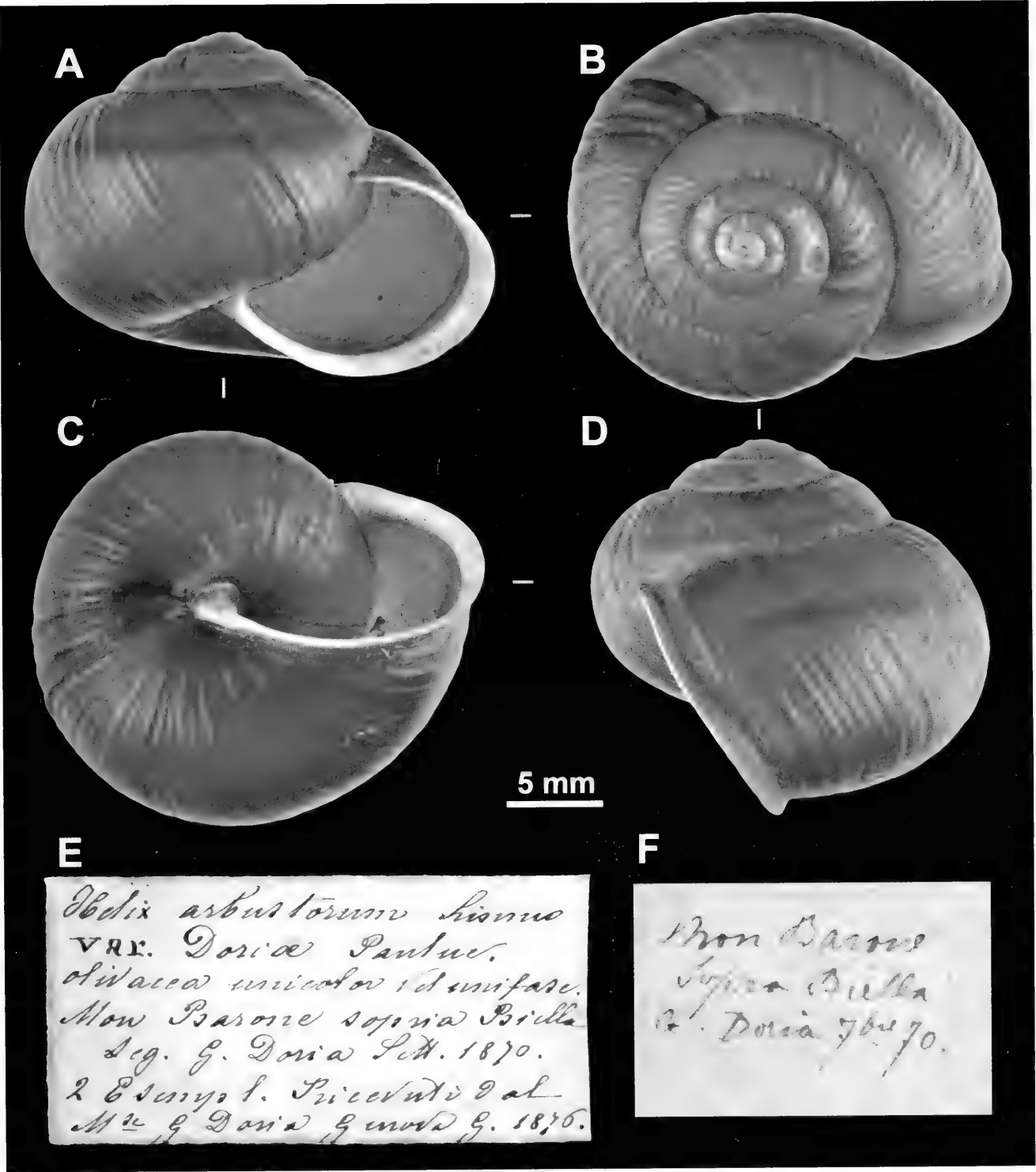


Fig. 23. *Arianta arbustorum doriae* (Paulucci, 1878), subspecies *taxon inquirendum*. Shell of *Helix* (*Arianta*) *arbustorum* Var. *Doriae* Paulucci, 1878; a syntype from "Mon Barone sopra Biella", MZUF GC/11947. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Original label. **F.** Shipping label of G. Doria attached to the base of the box.

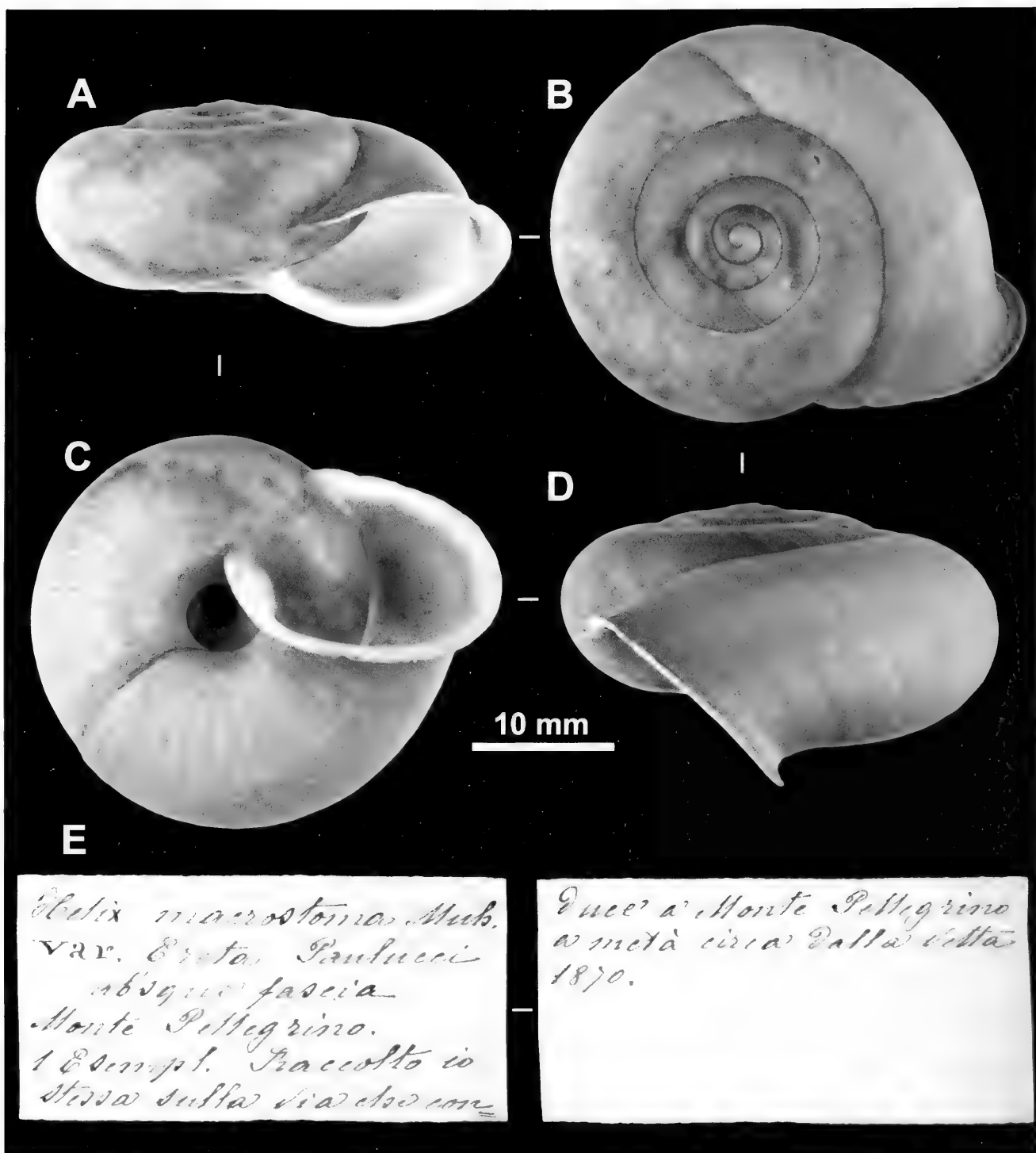


Fig. 22. *Campylaea* (*Campylaea*) cf. *macrostoma* (Rossmässler, 1837). Shell of *Helix* (*Campylaea*) *macrostoma* Var. *ereta* Paulucci, 1878; a syntype from "... via che conduce a Monte Pellegrino a metà circa dalla vetta", MZUF GC/11793. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Front and back of the original label.

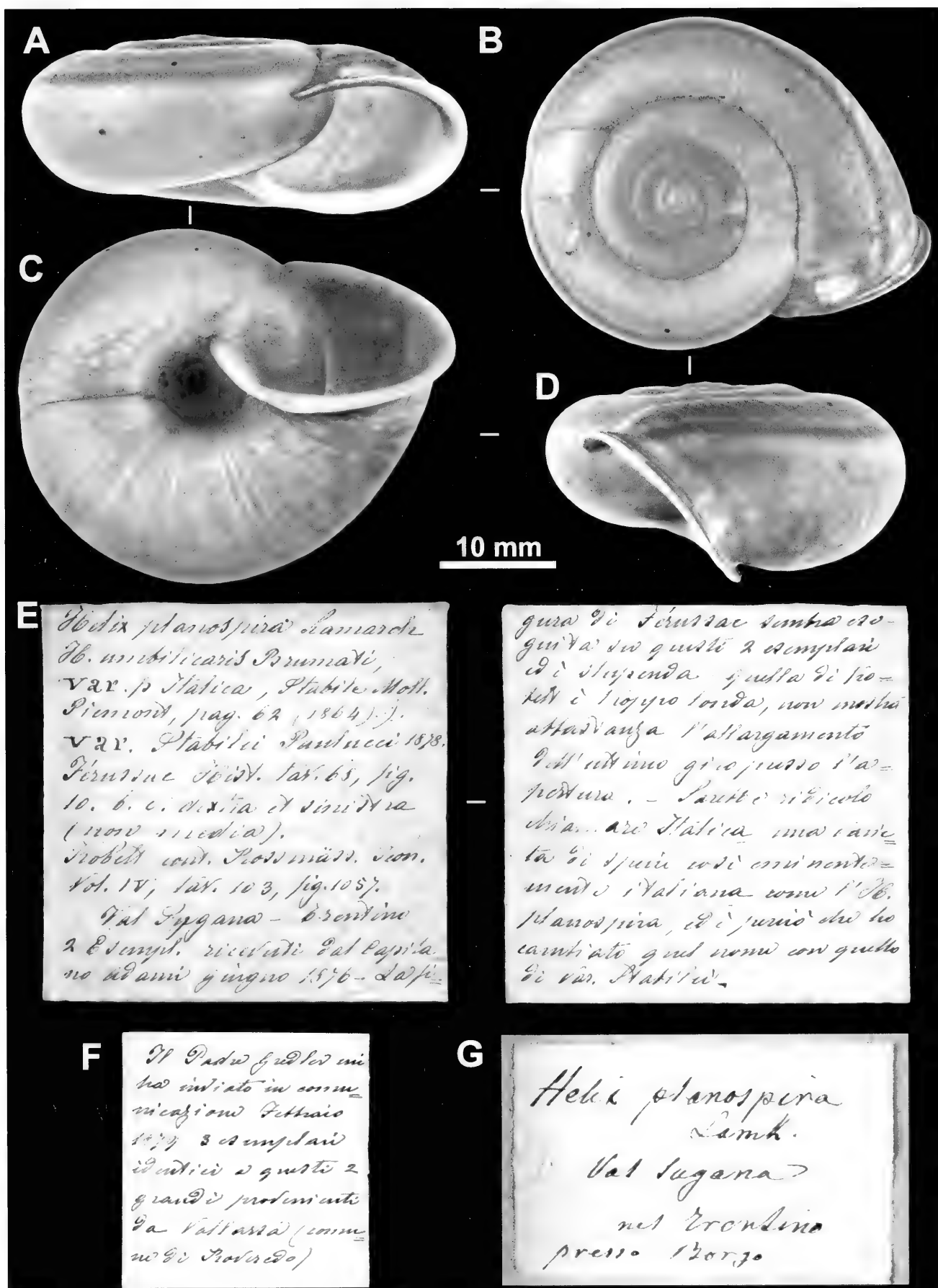


Fig. 21. *Campylaea* (*Oricampylaea*) *illyrica illyrica* (Stabile, 1864). Shell of *Helix* (*Campylaea*) *planospira* Var. *Stabilei* Paulucci, 1878; a syntype from "Val Sugana nel Trentino presso Borgo", MZUF GC/56895. **A**. Frontal view. **B**. Upper view. **C**. Lower view. **D**. Right lateral view. **E**. Front and back of the original label. **F**. Second label with additional annotations by Paulucci. **G**. Shipping label of G.B. Adami attached to the base of the box.

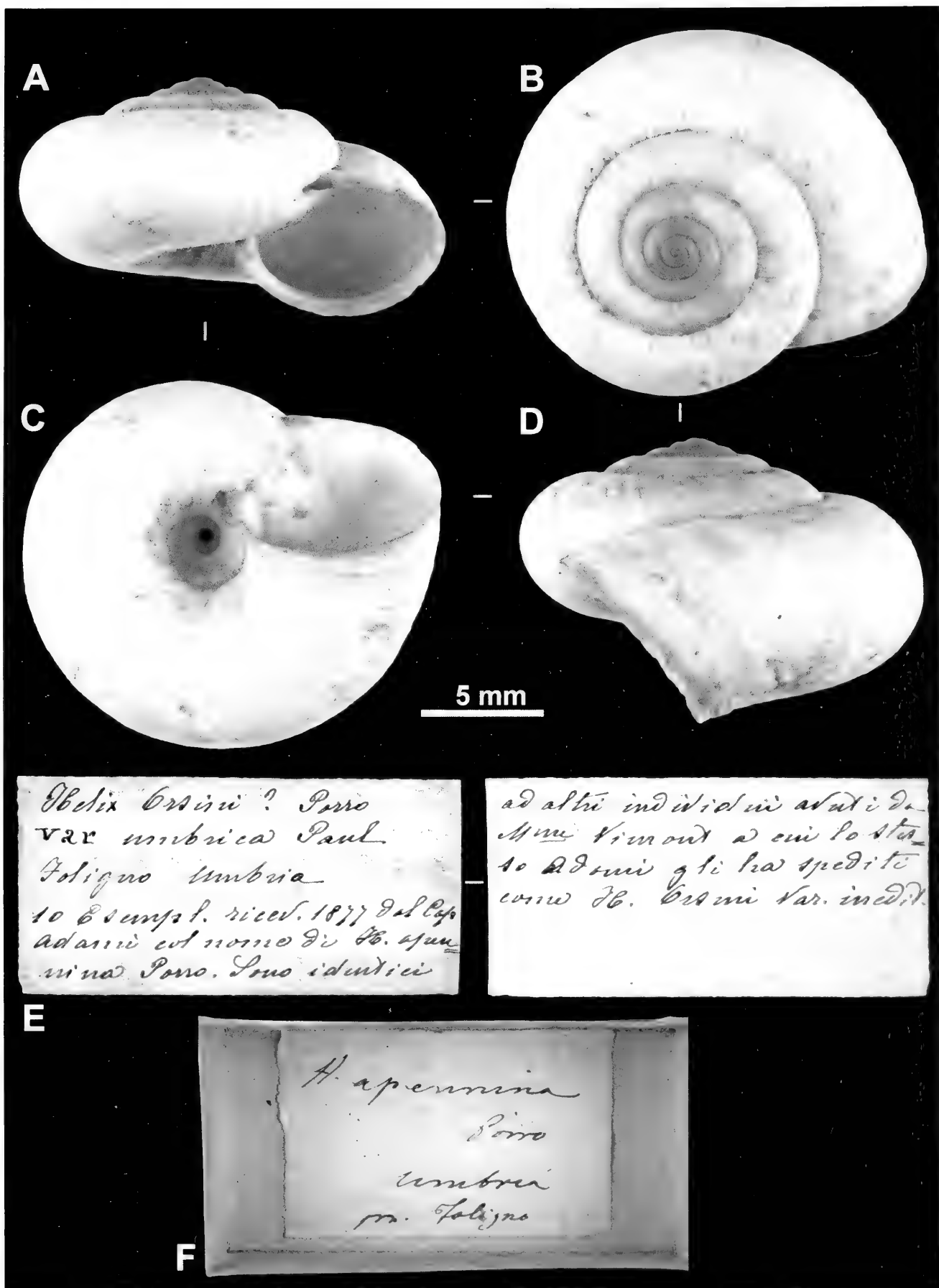


Fig. 20. *Monacha* sp., species taxon inquirendum. Shell of *Helix* (*Eulota*) *Orsinii* Var. *Umbrica* Paulucci, 1878; a syntype from "Fossato Umbria", MZUF GC/13681 **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Front and back of the original label. **F.** Shipping label of G.B. Adami attached to the base of the box

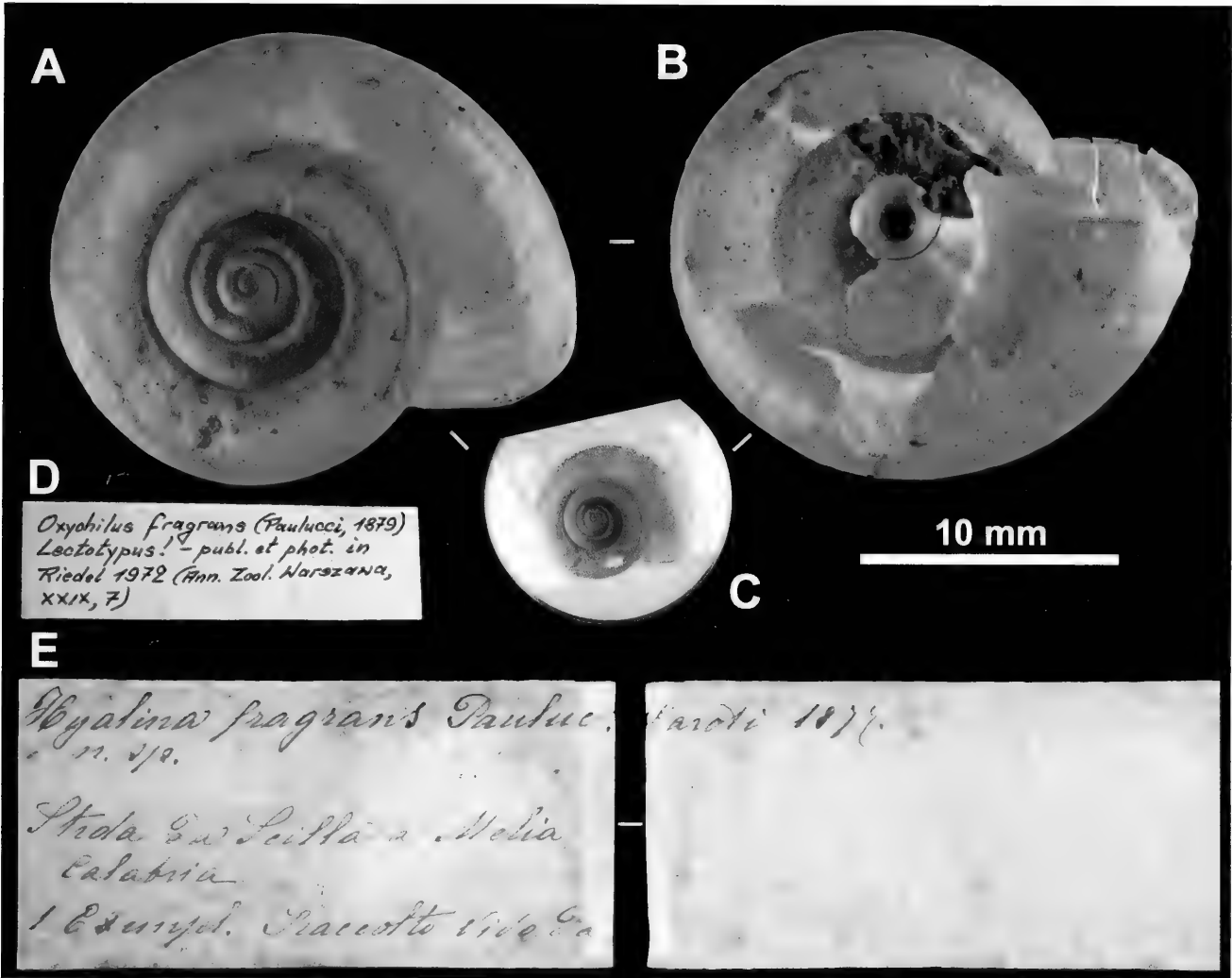


Fig. 19. *Schistophallus (Schistophallus) carotii* (Paulucci, 1878). Shell of *Hyalina (Mesonphix) fragrans* Paulucci, 1878; lectotype from "Str[a]da da Scilla a Melia Calabria", MZUF GC/821. **A.** Upper view. **B.** Lower view. **C.** Airtight capsule with sample manufactured by Riedel after extraction of the radula from the sample. **D.** Riedel's label; **E.** Front and back of the original label.

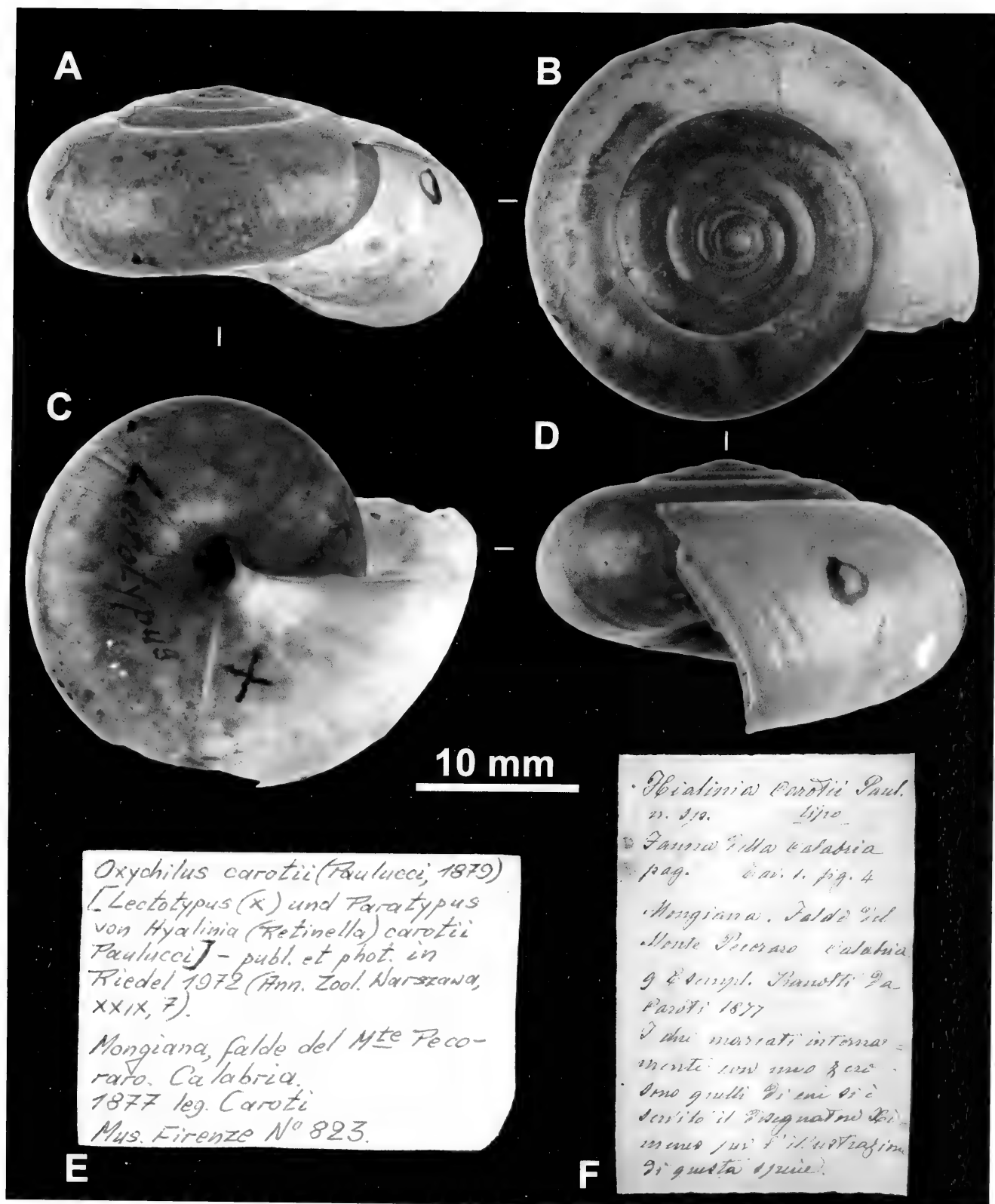


Fig. 18. *Schistophallus* (*Schistophallus*) *carotii* (Paulucci, 1878). Shell of *Hyalina* (*Mesomphix*) *Carotii* Paulucci, 1878; lectotype from "Mongiana. Falde del Monte Pecoraro - Calabria", MZUF GC/823. **A**. Frontal view. **B**. Upper view. **C**. Lower view. **D**. Right lateral view. **E**. Riedel's label. **F**. Original label.

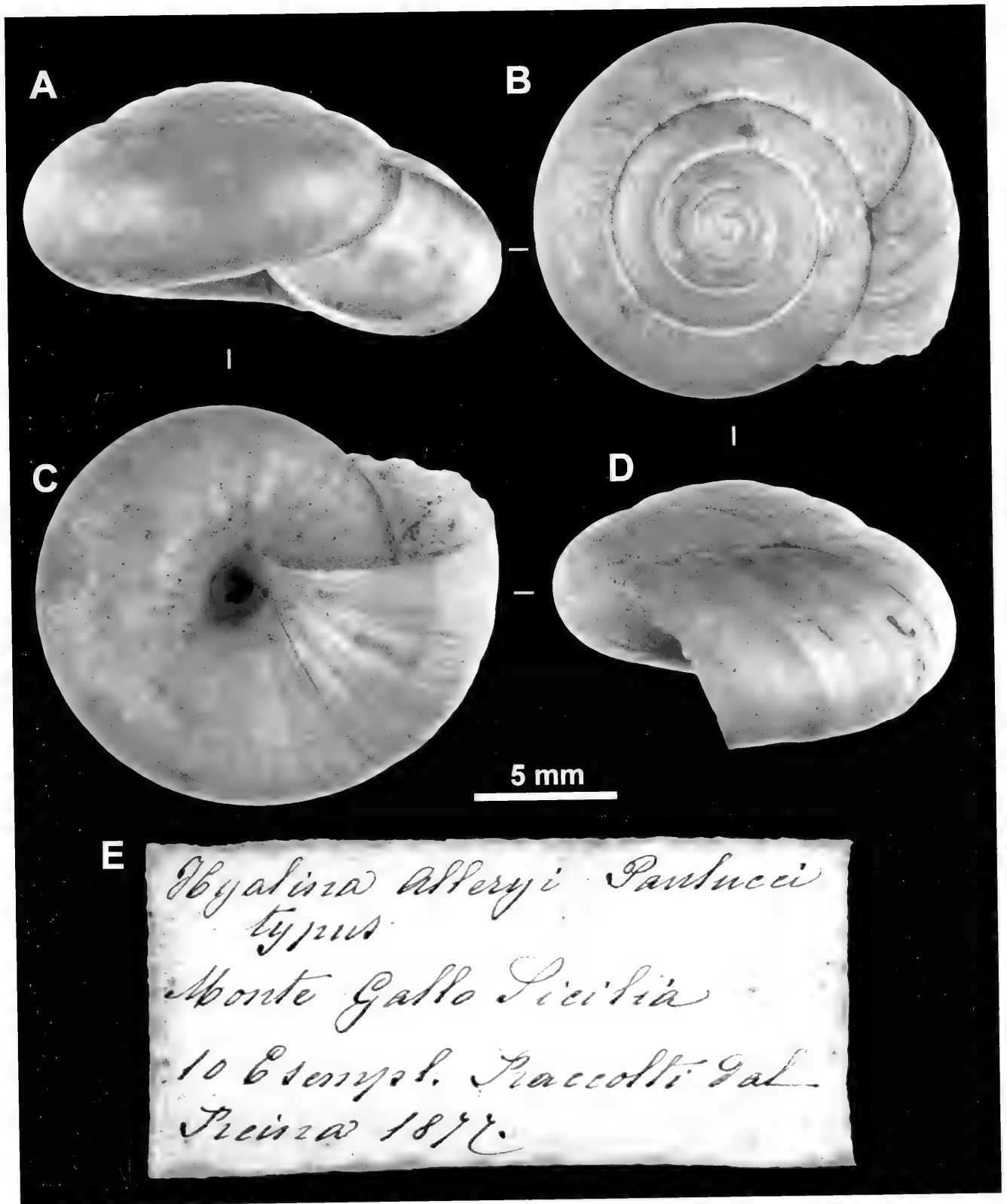


Fig. 17. *Oxychilus* (*Oxychilus*) *fuscus* (Rossmässler, 1838). Shell of *Hyalina* (*Mesomphix*) *Alleryi* Paulucci, 1878; a syntype from "Monte Gallo Sicilia", MZUF GC/756. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Original label.

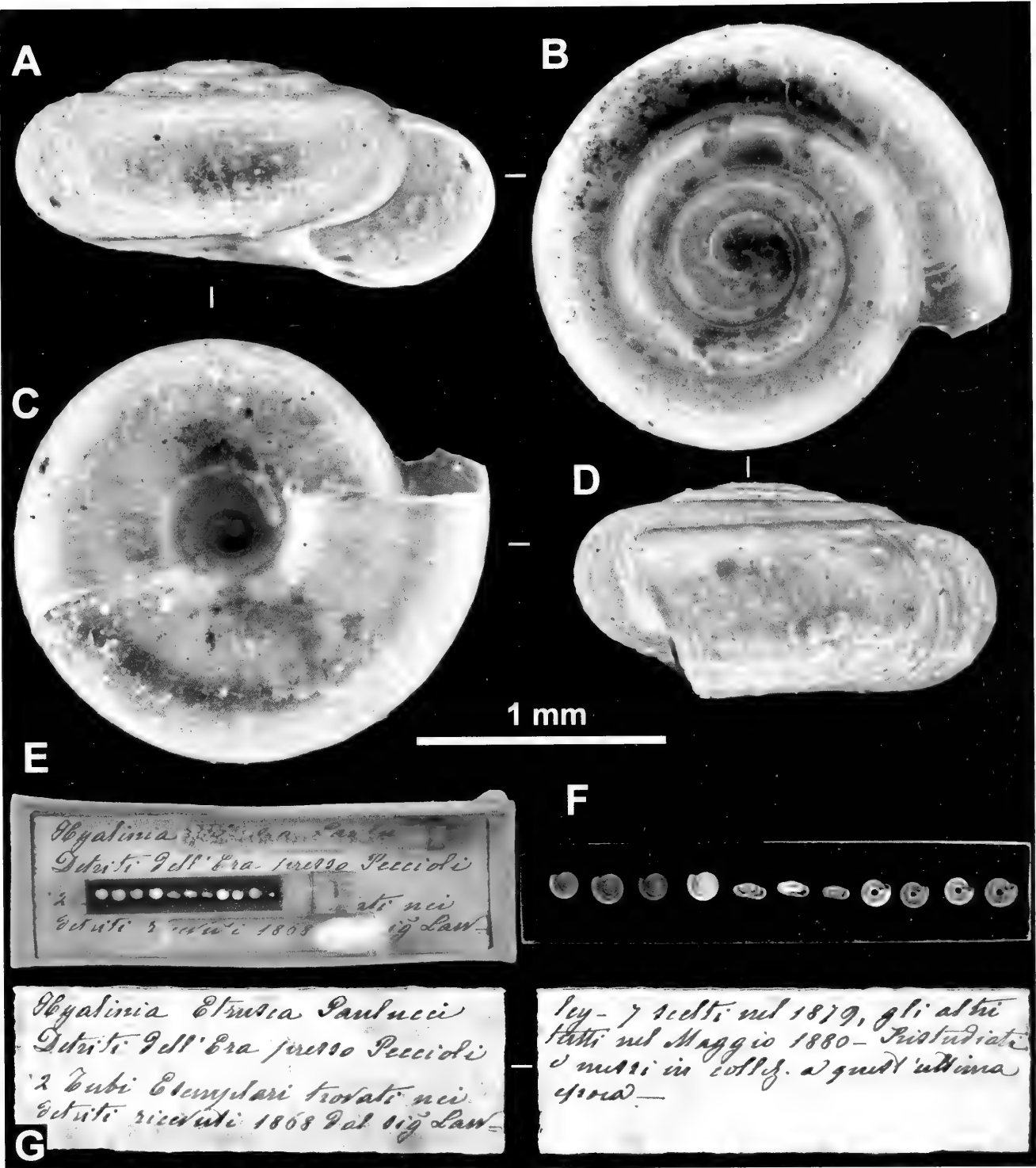


Fig. 16. *Vitrea etrusca* (Paulucci, 1878). Shells of *Hyalina* (*Vitrea*) *Etrusca* Paulucci, 1878; a few syntypes from “Detriti dell’Era presso Peccioli”, MZUF GC/812. **A.** Frontal view. **B.** Upper view. **C.** Lower view. **D.** Right lateral view. **E.** Full sample. **F.** Black cardboard with series of specimens. **G.** Front and back of the original label.

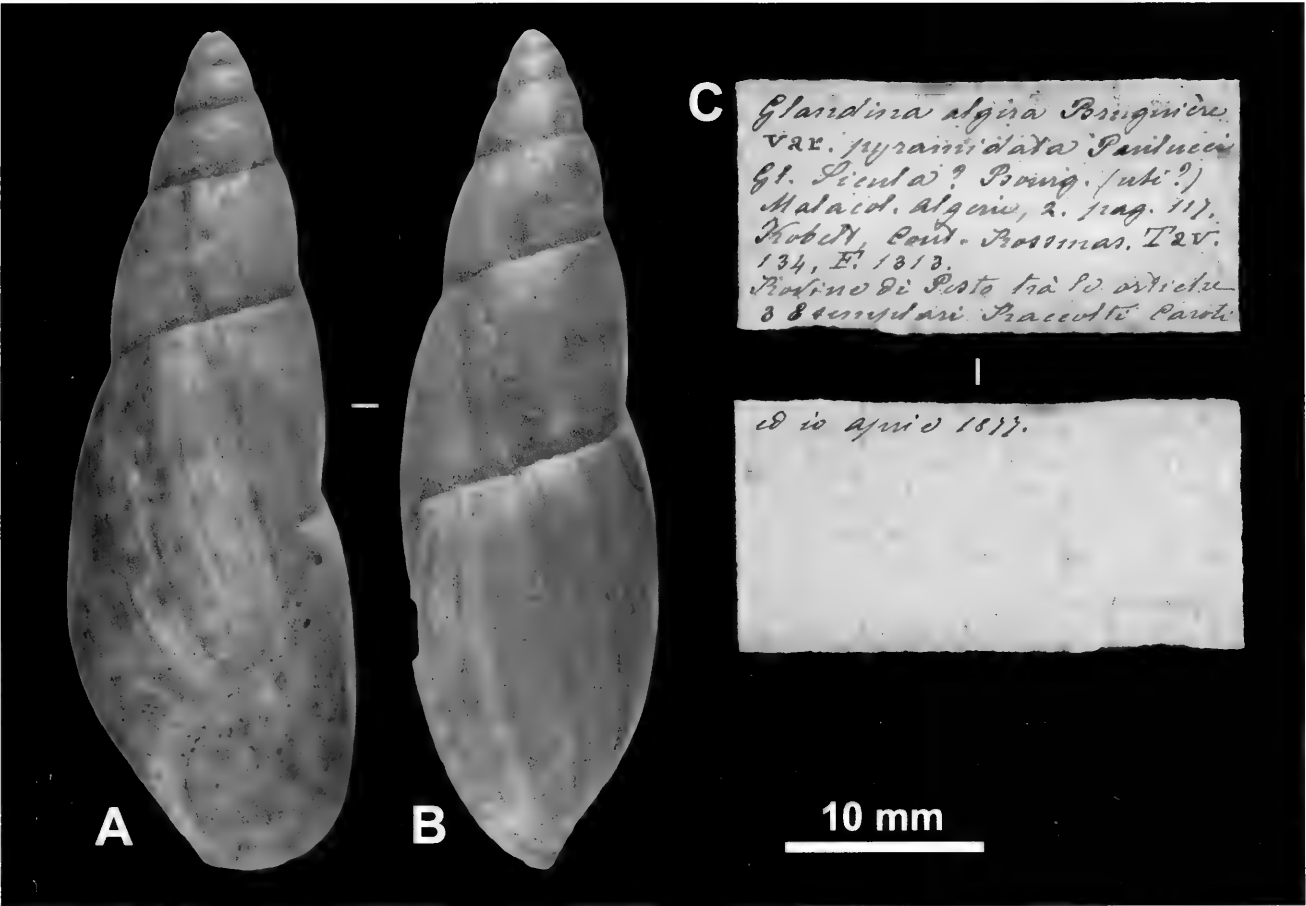


Fig. 15. *Poiretia dilatata dilatata* (Philippi, 1836). Shell of *Glandina Algira* Var. *pyramidata* Paulucci, 1878; a syntype from "Rovine di Pesto ...", MZUF GC/11946. **A.** Frontal view. **B.** Right lateral view. **C.** Front and back of the original label, in the Museum of Natural History, Zoology section (MZUF), University of Florence (SMA).



Fig. 14 *Purpurellus cyclopterus* (Millet, 1865) Shell of *Murex Veranyi* Paulucci, 1866; a syntype from "Pliocene. Dintorni di Siena", IGF 9044E. **A** Frontal view **B** Right lateral view **C** Dorsal view **D** Left lateral view. **E** Label of the Regio Istituto Geologico di Firenze, now in the paleontological collections of the Natural History Museum, of the University of Florence (SMA)

di lei sul proposito" [The n° 9 comes from the collection of Mr. Benoit: it is the *Pisidium nucleum* of this author! I am sending you the only specimen I have to hear your judgment on the matter]. However, the largest specimen in the Paulucci collection had considerably smaller dimensions (height 4.5 mm, length 5.3 mm) than those reported by Benoit (1882a, pp. 175-176; 1882b, pp. 215-

216). Since it is not possible to distinguish with certainty the specimen collected in Vizzini by Benoit and sent, mixed with others, by Cafici in December 1880 (there was also a second shipment in February 1881; **Fig. 54 G**), the taxon must therefore be represented by the iconotype of fig. 21, plate 8 by Benoit (1862) (Fig. 13 "F. 21").

lectotype but considering Benoit's description as *Amnicola cocchii* (1882a, p. 165; 1882b, p. 205), treated it as probably belonging to *Pseudamnicola*, based on what Giusti & Pezzoli (1980, p. 25) stated; however, in their conclusions, they stated that the group of species belonging to *Pseudamnicola* and *Mercuria* of Sicily should be revised: "Thus, in our opinion all species of *Pseudamnicola* and also of *Mercuria* inhabiting Sicily need revision". Glöer et al. (2015), as a part of a morphological and anatomical review of the circum-Mediterranean species of *Mercuria*, considered the *Mercuria* of the Maltese islands as *M. melitensis*, a species different from *M. similis*, prob-

ably also different from *M. kobelti*, to which *A. cocchii* is also referred, but limited to the specimens of the Maltese islands, while for Sicily only *Mercuria saharica* is reported (Letourneux & Bourguignat, 1887). Glöer (2019, pp. 167-168) cited for Sicily, albeit doubtfully, only *M. saharica*, based on some shells of the Bourguignat collection (MHNG 5456). The only specimen of *Amnicola cocchii* in the Paulucci collection, which in this context is designated as a lectotype, is attributed, on a morphological basis, to *Mercuria melitensis*, as it does not seem to differ from the specimens of the Maltese populations belonging to this species.

Valvata cristata ? var. *Delpretiana* Paulucci, 1878 (Fig. 53)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 20, n° 502; p. 51, note 128.

Original description: "Testa divaricata, subscalaris; anfract. 2, primis subplanulatis, ultimo ac penultimo contorto-subdisjunctis. ... Ils rappellent en miniature les fig. 11, 12, pl. 16, du *Planorbis marginatus* (monstruosité), tel qu'il est représenté par Michaud (Complém. à Drap). Seulement il n'est pas ici question d'une forme isolée, mais d'une race qui se reproduit comme une variété"

Type locality: described from "... un marais aux environs de Viareggio".

Type material: syntypes, 6 shells. MZUF: "Paduli presso Viareggio Toscana", GC/11959 (6 shells).

Current status: Family: *Valvatidae* Gray, 1840; Genus: *Valvata* Müller, 1773; Subgenus: *Valvata* (*Valvata*) Müller, 1773; Species: *Valvata* (*Valvata*) *cristata* Müller, 1774.

Remarks: Haszprunar (2014, p. 137) in the compilation of all supra- and infra-specific taxa of extant and fossil *Valvatidae*, also cited the Paulucci taxon. Considering *V. cristata delpretiana* a teratological population and agreeing with Giusti & Mazzini (1971), Giusti (1973b, p. 428) and Bank & Neubert (2017), the taxon is considered as a younger synonym of *Valvata* (*Valvata*) *cristata* Müller, 1774.

Pisidium nucleum Paulucci, 1878 (Fig. 54)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 21, n° 533.

Original description: "Benoit. Moll. Sicil., pl. 8, fig. 21".

Type locality: described from "Sicile" [Sicily]. Detailed locality from type material.

Type material: Topotypes, 17 shells sent by Cafici (letter 12/18/1880, among these, certainly not identifiable, a syntype sent by Benoit, Fig. 55). MZUF: "Vizzini Sicilia", BC/1451 (17 shells).

Current status: Family: *Sphaeridae* Deshayes, 1855; Genus: *Pisidium* Pfeiffer, 1821; Species: *Pisidium casertanum* (Poli, 1791).

Remarks: Paulucci (1878a) reported the name of "*Pisidium nucleum*" correlating it to fig. 21 of table 8 by Benoit (1862) and therefore this name is attributable to Paulucci and not to Benoit (see the Introduction), even if at that date she did not possessed any specimens (in the table the name of the species is preceded by a cross which, as she explained on page iii, she marked the species of which she had no specimens). Paulucci (1880e, p. 181) wrote about this species: "Il signor Benoit, in Bull. Soc. Malacol. Italiana, 1875 [1876], pag. 163, parla di un *P. nucleum*, Benoit, reperibile presso Vizzini in Sicilia, aggiungendo che questa è la specie più grande del genere. Non ho la

minima idea di cosa sia questa specie, osservo però che non essendo né descritta né figurata, sarebbe difficile riconoscerla su questa sommaria indicazione e non potrebbe venire accettata dai malacologi che dopo regolare pubblicazione" [Mr. Benoit, in Bull. Soc. Malacol. Italiana, 1875 [1876], p. 163, speaks of a *P. nucleum*, Benoit, found at Vizzini in Sicily, adding that this is the largest species of the genus. I have no idea what this species is, but I observe that since it is neither described nor figured, it would be difficult to recognize it on this summary indication and it could not be accepted by malacologists until after regular publication.]. Actually, a more accurate description and a clarification on the sizes (height 7 mm, length 8 mm) was reported only later, in Benoit (1882a, pp. 175-176; 1882b, pp. 215-216), but in any case, the taxon was already depicted by Benoit (1862), even if in a table without a caption, and reported by Paulucci (1878a). In the sample sent by Baron Corrado Cafici to Paulucci, all the specimens were collected in Vizzini, and one of these was given to her by Benoit himself, as explained in the letter of 18 December 1880 that Cafici sent to Paulucci (document kept in the Florence State Archive, Fig. 55), where she wrote: "Il n° 9 proviene dalla collezione del Signor Benoit: è il *Pisidium nucleum* di questo autore! Le mando il solo individuo che io posseggo per sentire il giudizio

Remarks: Paulucci examined the species in a later work (Paulucci 1880c, pp. 201-202), providing an accurate description in Latin and Italian: “*Testa rimata, obeso-conica, solidula, corneo-laeviscula, vel limo virescenti vestita; spira acuta, apice minuto; anfract. 4 ½-5, convexiusculis celeriter crescenti bus, sutura profunda separatis; ultimo maximo, ventricosus, dimidiam altitudinem subequante; apertura parum obliqua, ovato-rotundata, superne leviter angulata, subproducta; peristoma simplex, continuum, saepe solutum, margine columellari appresso, reflexiusculo, externo ovato arcuato. Operculo typico, immerso*” “*Conchiglia provvista di un assai lunga fessura ombilicale, di forma obeso-conica, solida, liscia, di color corneo, ovvero coperta da un limo verdastro; spira acuta, apice sottile; anfratti 4 ½-5, che crescono celeri e sono divisi da profonda sutura; l'ultimo molto più grande e ventricosus quasi alto quanto l'altra metà di tutta la conchiglia; apertura alquanto obliqua, rotondato ovale, superiormente un poco angolosa ed allungata; peristoma semplice, continuo, spesso staccato, margine columellare ripiegato sull'ultimo giro, sebbene sporgente, margine esterno ovato ed arcuato.* [Shell provided with a very long umbilical fissure, obese-conical in shape, solid, smooth, horny in colour, or covered by a greenish silt; sharp spire, thin apex; whorls 4 ½-5, which grow rapidly and are divided by a deep suture; the last much larger and convex almost as high as the other half of the whole shell; somewhat oblique opening, rounded oval, slightly angular and elongated above; simple, continuous, often detached peristoma, columellar margin folded over the last, although protruding, outer margin ovate and arched]. In citing Benoit's plates, Paulucci (1880b) once again reported that she received the manuscript: “*Communic. Manos. 1878*”; also indicated the fig. 29 by Benoit which she forgot to report in the *Materiaux*. In this second description, Paulucci (1880b) extended the taxon's range also to Calabria. Cianfanelli & Manganelli (2002)

and Liberto et al. (2010) attributed the taxon to Paulucci but at a later date based on the work on Calabria (Paulucci, 1880b), where the author reconsidered the species by Benoit, not citing her previous description in *Materiaux* (Paulucci, 1878a). Giusti (1976) and Manganelli et al. (2017) considered *P. vestita* synonymous with *P. moussonii* (Calcara, 1841), while Liberto et al. (2010) considered this taxon taxonomically uncertain.

The taxonomy of the Italian *Pseudamnicola* is complex and to date only partially clarified. Recent genetic data (Delicado et al., 2015) suggested the presence of two species in Sicily: *P. moussonii*, widespread in the western area and present on the Nebrodi mountains, and *Pseudamnicola orsinii* (Küster, 1852), more localized in the eastern portion of the island. The two species are also recognizable by the anatomical characters, in particular by the length of the seminal receptacle, even if this presents a certain variability. Therefore, based on the anatomical and genetic characteristics, *P. vestita* includes two species in relation to the different localities of origin. Bank & Neubert (2017) and MolluscaBase (2020) reported two subspecies of *Pseudamnicola moussonii*: the typical subspecies and *P. m. magozensis* Boeters & Glöer, 2015, for Gozo Island in the Maltese Archipelago. This subspecies could be distinguished from the typical subspecies, according to the authors, by the shape of the base and the conformation of the apex of the penis in males and by the length of the seminal receptacle in females (Boeters & Glöer, 2015). Given the variability found in these characters, both in the Maltese populations and in the Sicilian populations of *P. moussonii* (Giusti et al., 1995; personal data), even in the Sicilian populations examined genetically (Delicado et al., 2015), it does not seem justified the separation of the Maltese populations at a subspecific level, and therefore it is considered appropriate to consider *P. moussonii* as a monotypic taxon.

Amnicola Cocchii Paulucci, 1878 (Fig. 52)

Original publication: Paulucci, 1878a. *Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles*: p. 19, n° 483; p. 50, nota 119.

Original description: “*Benoit. Moll. Sicil., pl. 7, fig. 30*”.

Type locality: described from “*Sicile*” [Sicily]. Detailed locality from type material.

Type material: Lectotype, 1 shell. MZUF: “*Dintorni di Mazzara Sicilia*”, GC/13150 (1 shell).

Current status: Family: *Hydrobiidae* Stimpson, 1865; Genus: *Mercuria* Boeters, 1971; Species: *Mercuria melitenensis* (Paladilhe, 1869).

Remarks: Paulucci (1878a) reported the name of “*Amnicola Cocchii*” correlating it to fig. 30 of table 7 by Benoit (1862), and therefore this name is assigned to Paulucci and not to Benoit (see the Introduction). Benoit (1882a, p. 165; 1882b, p. 205) reported *Amnicola cocchii* from Mazara in Sicily. Kobelt (1892, pp. 54-55, pl. 134, fig. 834) received specimens from Benoit with the name of

Paludina Cocchii from Malta, different from the specimen drawn in figure 30 of Benoit's plate VII (1862), and attributed them to the genus *Pseudamnicola*. Westerlund (1892), considering the specimen depicted by Kobelt of Malta as a new species, described it as *Paludinella (Pseudamnicola) kobelti*. Giusti & Pezzoli (1980, p. 25) treated “*Paludina cocchi* Benoit” as a probable synonym of *Pseudamnicola moussonii* (Calcara, 1841). According to Boeters & Beckmann (1991, pp. 179-181), *Paludina cocchii* Benoit, 1882 should be a younger synonym of *Mercuria cf. confusa* (Frauenfeld, 1863) and different from *Mercuria kobelti*. Beckmann (1992) also treated the two taxa similarly. Giusti et al. (1995, p. 129) reported among the synonyms of *Mercuria cf. similis* for the Maltese islands, in addition to the citations of *M. cf. confusa* of Beckmann (1987) and Boeters & Beckmann (1991), also that of *Mercuria kobelti*, but, even if doubtfully, they did not affirmed the synonymy with *Amnicola cocchii* by Benoit. Boeters & Glöer (2015), having not examined Paulucci's

Type material: “*Belgrandia thermalis* Linné (Turbo)”, MZUF: “Acque Termali di S. Giuliano ... Fosso di S. Giuliano”, GC/13164 (33 shells). “*Hydrobia Aponensis* V. Martens”, MZUF: “Abano, Prov. Padova”, GC/19006 (19 shells), GC/19007 (21 shells).

Current status: Family: Hydrobiidae Stimpson, 1865; Genus: not definable (*Belgrandia* Bourguignat, 1870 or *Eupaludestrina* Mabilie, 1877).

Remarks: Paulucci (1878a, p. 19) included, in the description of this genus, two species: *Turbo thermalis* Linnaeus, 1767, and *Hydrobia aponensis* von Martens, 1858. Paulucci (1879d) still supported the belonging of *Turbo thermalis* to the new genus *Thermhydrobia*. Only later, Paulucci (1882b, p. 340), while describing a new species of *Thermhydrobia*, *T. zinnigasensis* Paulucci, 1882, assigned *T. thermalis* to the genus *Belgrandia* Bourguignat, 1870 (known to the genus *Thermhydrobia* at p. 340: “Escluso il Turbo thermalis, Linneo ... il quale invece viene inserito nel genere *Belgrandia*, Bourguignat, 1869” [Excluding *Turbo thermalis*, Linnaeus ... which instead is inserted in the genus *Belgrandia*, Bourguignat, 1869] and this choice was also confirmed by Del Prete (1879). These three species currently belong to three different genera: *Belgrandia*, *Eupaludestrina* Mabilie, 1877, and *Mercuria* Boeters, 1971 (Kadolsky, 2012; MolluscaBase, 2020).

With the exception of *Thermhydrobia zinnigasensis* Paulucci, 1882, junior synonym of *Mercuria zopissa* (Paulucci, 1882) (see Giusti, 1979), not included in the description of the genus *Thermhydrobia* Paulucci, 1878, as described later, the other two species belong to the genera described prior to *Thermhydrobia*; therefore *Thermhydrobia* must be treated as a junior synonym of *Belgrandia* Bourguignat, 1870 or of *Eupaludestrina* Mabilie, 1877. Kabat & Hershler (1993) affirmed that the type species of *Thermhydrobia* is *Turbo thermalis* by original designation, but in the work of Paulucci (1878a) there was no reference to the choice of the type species. Kabat & Hershler (1993) reported a debated and contradictory discussion by several authors on the identity of *T. thermalis*, but they did not justify the choice of this species as a type species. Boeters et al. (1977) considered *T. thermalis* as a *Thermhydrobia* type species, not justifying this choice. The fact that Paulucci (1882b) removed *T. thermalis* from the genus *Thermhydrobia* did not authorize not to consider *Belgrandia* as a possible synonym, as this consideration was proposed only later by the establishment of *Thermhydrobia*. Therefore, *Thermhydrobia* should be considered as a junior synonym of the genus *Belgrandia* or of the genus *Eupaludestrina* but at present, to which of these two genera it is not possible to attribute.

Pseudamnicola Paulucci, 1878 (Fig. 50)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 19; p. 48, note 113 bis.

Original description: “Dans le cas où l'on adopterait pour nos *Amnicola* de l'Europe un nom de genre nouveau, je proposerais celui de *Pseudamnicola*, Paulucci”.

Type species (generotype): *Bythinia lucensis* Issel, 1866, by subsequent designation (Kennard & Woodward, 1926, p. 24).

Type material: “*Amnicola Lucensis Stabile (ubi?)*”, MZUF: “Bagni di Lucca, sponda destra della Lima”, GC/18809 (31 shells).

Current status: Family: Hydrobiidae Stimpson, 1865; Genus: *Pseudamnicola* Paulucci, 1878.

Remarks: the genus is considered valid (Radoman, 1966, 1983; Boeters, 1971, 1999; Giusti, 1976; Giusti & Pezzoli, 1980; Delicado, 2014; Boeters & Glöer, 2015; Delicado et al., 2015) and also recently reported (Bank & Neubert, 2017; MolluscaBase, 2020). Kabat & Hershler (1993) stated that Kennard & Woodward's (1926) designation of the type species, *P. lucensis*, was invalid because this was not an originally included species, following Zilch (1966) who based his study on Wagner (1928), who designated *Paludina macrostoma* Küster, 1853, as a generotype. Boeters (1999), on the other hand, stated that *P. lucensis* is a species originally included in the genus *Pseudamnicola* (Paulucci, 1878a, p. 19 n° 479) and therefore must be considered the type species, as it was designated prior to the Wagner's type species (1928).

Amnicola vestita Paulucci, 1878 (Fig. 51)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 19, n° 478; p. 49, note 115.

Original description: “Benoit, Moll. Sicil., pl. 7, fig. 27”; “Cette espèce est assurément bien proche de la précédente [*Amnicola macrostoma*], elle m'en paraît pourtant distincte, elle est surtout plus grêle et à spire plus haute, plus aiguë”.

Type locality: described from “Sicile” [Sicily]. Detailed localities from type material.

Type material: syntypes, 115 shells. MZUF: “Monte Cuc-

cio Sicilia”, GC/13659 (21 shells); “Madonie”, GC/13660 (5 shells), GC/11977 (18 shells); “Madonie, Sicilia”, GC/11980 (16 shells); “Madonie Sicilia”, GC/11981 (12 shells); *Spadafora Sicil.*”, GC/11978 (3 shells) “Dintorni di Mazzara Sicilia”, GC/18832 1 shell); “Fiume Anapo”, GC/11976 (9 shells); “Sicilia Fiume Anapo”, GC/11979 (7 shells); “Fiume Anapo Sicilia”, GC/13697 (23 shells).

Current status: Family: Hydrobiidae Stimpson, 1865; Genus: *Pseudamnicola* Paulucci, 1878; Species: *Pseudamnicola moussonii* (Calcara, 1841) (partim) and *Pseudamnicola orsinii* (Küster, 1852) (partim).

più allungata, per gli anfratti meno ventrosi, che crescono più regolarmente e per l'apertura alquanto staccata e libera dall'anfratto superiore" [The var. *scalarina*, is distinguished by a slender and more elongated shape, for the less convex whorls, which grow more regularly and for the opening somewhat detached and free from the upper whorls]. Although in the first description by Paulucci (1878a) the taxon is described as a variety of a still unpublished species of her collection and the name was proposed only in a note, based on articles 23.3.5, 47.2 and 45.6.4 of the ICZN, 1999 Code, the name must be considered valid, available since 1878, and of specific rank. Forcart (1965)

designated a restricted type locality for this taxon: "Prov. Catanzaro, Pizzo". However, the restricted type locality is not valid because a lectotype was not designated (Article 76.2 of the ICZN, 1999 Code). Moreover, Forcart (1965) considered it synonymous with *Pseudamnicola carotii*. *P. carotii* has been considered a synonym of *P. moussonii* (Calcara, 1841) by Giusti (1976), but anatomical studies and genetic insights on the Italian *Pseudamnicola* (Delicado et al., 2015; personal unpublished data) lead to consider it a junior synonym of *Pseudamnicola orsinii* (Küster, 1852) for the populations of southern Italy, and to another entity for the populations of Tuscany.

Bythinia? lacunoides Paulucci, 1878 (Fig. 48)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 19, n° 472; p. 48, note 110.

Original description: "... qui est toute blanche et transparente, pourvue d'un ombilic comme un Lacuna!".

Type locality: described from "... environs de Palerme!".

Type material: syntypes, 5 shells. MZUF: "Dintorni di Palermo", GC/18789 (5 shells).

Current status: Family: Hydrobiidae Stimpson, 1865; Genus: *Mercuria* Boeters, 1971; Species: *Mercuria melitensis* (Paladilhe, 1869).

Remarks: the unique author who mentioned this taxon is Salinas (1907a, 1907b), in papers where he listed the fossil and continental molluscs living in a locality near Palermo. Paulucci's (1878a) intention was not to establish a new species, but to await further information before describing it as "*lacunoides*": "*Bythinia*..... J'ai reçu du Marquis de Monterosato deux exemplaires de cette intéressante espèce qui est [t]oute blanche et transparente, pourvue d'un ombilic comme un Lacuna! Il me l'a donnée comme provenant des environs de Palerme! J'avoue que je suis étonnée qu'elle appartienne à une espèce fluviatile! Cependant mon ami Monterosato connaît trop bien les coquilles marines, celles de ses parages surtout, pour qu'il soit admissible qu'il se soit trompé. Dans tous les cas, avant de la décrire, je veux attendre de plus amples renseignements. Elle pourra se nommer B...? lacunoides" [*Bythinia* I received from the Marquis de Monterosato two copies of this interesting species which is [all] white and transparent, provided with an umbilicus like a Lacuna! He gave it as coming from the surroundings of Palermo! I admit that I am surprised that it belongs to a fluvial species! However,

my friend Monterosato knows sea marine shells too well, especially those around him, so I can't believe he was wrong. In any case, before describing it, I want to wait for more information. She could be called *B* ...? *lacunoides*]. Actually, given that the name was proposed conditionally, and accompanied by a description (even if extremely short) and there is typical material in the Paulucci collection, based on art. 15.1 of the International Code on Zoological Nomenclature (ICZN, 1999) the new name should be available. Glöer (2019, p. 168), analyzing the material preserved at the Muséum d'Histoire Naturelle (MHNG) in Genève, Switzerland, stated that the Sicilian samples of *Mercuria* "... near Palermo ..." are similar to Saharian *Mercuria* (Letourneux & Bourguignat, 1877), but the sizes of this specimen of *M. lacunoides* (4 mm in shell height) were much smaller than those reported for *M. saharica* (5.5-6.2 mm in shell height, according to Glöer, 2019). Bodon et al. (2005), Bank & Neubert (2017) and MolluscaBase (2020) considered the Sicilian populations attributable to *Mercuria similis* (Draparnaud, 1805), but this species, recently considered endemic to the Mediterranean area, from south-western France to the north-east Spain, had larger sizes and wider opening (Glöer et al., 2015; Boeters & Falkner, 2017; Glöer, 2019). On the other hand, the taxon seemed to correspond to *Mercuria melitensis* (Paladilhe, 1869), a widespread species in the Maltese Islands (Beckmann, 1987, as *M. cf. confusa* and *M. sp.*; Giusti et al., 1995, as *M. cf. similis*; Boeters & Beckmann, 1991, as *M. kobelti*; Glöer et al., 2015; Glöer, 2019. Therefore, from the examination of the typical material, the taxon *lacunoides* is considered a younger synonym of *Mercuria melitensis* (Paladilhe, 1869).

Thermhydrobia Paulucci, 1878 (Fig. 49)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 19; p. 48, note 112 bis.

Original description: "Je propose ce nouveau nom générique pour les espèces d'*Hydrobia* qui vivent dans les eaux

des sources chaudes et dont la coquille présente des caractères qui permettent facilement de la séparer des Amnicola et des Paludinella".

Type species (generotype): not definable; the genus referred both to *Turbo thermalis* Linnaeus, 1767 (partim) and to *Hydrobia aponeensis* von Martens, 1858 (partim).

Cochlostoma (Auritus) paladilhanum (Saint Simon, 1869). Liberto et al. (2010) attributed it to an endemic subspecies of *Favignana*. Pending a review of all the Sicilian

species of the genus *Cochlostoma*, at present it was not possible to specify whether *P. pirajni* Paulucci, 1878, belonged to a valid subspecies or not.

Bythinia Segestana Paulucci, 1878 (Fig. 46)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 19, n° 471; p. 47, note 107.

Original description: "Ben. Moll. Sicil., pl. 7, fig. 23"; "Cette espèce se fait remarquer par une forme de boule très-prononcée, à spire fort peu élevée, à dernier tour formant à lui seul presque les deux tiers de la coquille."

Type locality: described from "... fleuve Oreto, près Palerme, ..."; "... dans l'Anapo".

Type material: syntypes, 33 shells. MZUF: "Fiume Oreto" GC/16364 (1 shell); "Fiume Anapo", GC/16363 (32 shells).

Current status: Family: Bithyniidae Gray, 1857; Genus: *Bithynia* Leach, 1818, or *Pseudobithynia* Glöer & Pešić, 2006; Species: taxon inquirendum.

Remarks: Paulucci (1878a) reported the name of "*Bythinia Segestana*" correlating it to fig. 23 of table 7 by Benoit (1862), and therefore this name is attributable to Paulucci and not to Benoit (see the Introduction). Benoit (1876, p. 161) published the species for the first time as *Paludina segestana* providing only the collection localities, "vicino Palermo, sulle Madonie, e nelle acque del fiume Segesta" [near Palermo, on the Madonie, and in the Segesta river]. Only later Benoit (1882a, pp. 161-162; 1882b, pp. 201-202) provided the description as *Bythinia segestana*, correlating it to fig. 23, pl. 7 of the 1862 paper. Kobelt (1898, p. 298) cited "*Bithynia segestana* Ben." as species in the section "11) Molluskenfauna von Sicilien (die mit * bezeichneten sind auf den Westen beschränkt)". Alzona (1971, p. 40) treated *segestana* Benoit, 1882, among the "Species dubiae". The Sicilian *Bythinia*

differed from *B. italica* (Paulucci, 1880) or from *B. leachii* (Sheppard, 1823) for the less deep sutures and the less convex whorls. The anatomical data, still preliminary, revealed the presence of at least two different entities, even if they had a similar shell: a species of the genus *Pseudobithynia* Glöer & Pešić, 2006 (penis without penial appendix), in the Oreto River and from Palermo (Palermo province, NW Sicily), and a species of the genus *Bithynia* (penis with penial appendix but with a very short tubular gland) in the basin of the Irmínio River, in the Ragusa province (southern Sicily). The species from Palermo area can be named as *Pseudobithynia socialis* (Westerlund, 1886), the oldest name for a Bithyniidae described from the Palermo area only, but it is not possible to assign and clarify the status of other historical species generically described from Sicily or from other areas of the island (as *B. segestana*) until more populations from different basins are examined, especially from the Anapo river (SE Sicily). For example, *Bithynia rubens* (Menke, 1830), the oldest taxon described among the Sicilian *Bithynia*, was long considered a synonym, a taxon of uncertain taxonomic value or of dubious attribution (Sacchi & Girod, 1968; Alzona, 1971). Only recently *B. rubens* was reconsidered by Glöer (2019, fig. 121), but erroneously reported samples of *Pseudamnicola* from Sardinia (Sigrid Hof, in litteris, 18/08/2020), rather than typical material of *Bithynia* from Sicily. Furthermore, the taxonomy of the genus *Bithynia* of the West-Palearctic area is still confused: many species were validated or described on small differences in the shell or in the anatomy (Glöer, 2019), but a revision based on a molecular approach is still missing.

Bythinia scalarina Paulucci, 1878 (Fig. 47)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 19, n° 472; pp. 47-48, note 109.

Original description: "Elle se distingue par une spire particulièrement acuminée et élancée, par le dernier tour très-peu élargi ou évasé, et par ses tours qui s'enroulent en forme de rampe".

Type locality: described from "... Calabre, à Pizzo et à Scilla ...; ... Pizzo alla Seggiola ...; ... île d'Elbe". Another locality in Calabria from type material.

Type material: syntypes, 18 shells. MZUF: "Pizzo, Calabria", GC/13602 (14 shells); "Palizzi Calabria", GC/13603 (2 shells); "Porto Longone I. dell'Elba", GC/18810 (2 shells).

Current status: Family: Hydrobiidae Stimpson, 1865; Genus: *Pseudamnicola* Paulucci, 1878; Species: *Pseudamnicola orsinii* (Küster, 1852) (partim) and *Pseudamnicola* sp. (partim).

Remarks: Paulucci (1878a) described this taxon as a form of a new species of "*Bythinia*"; subsequently, Paulucci (1880b) described *Amnicola carotii* Paulucci, 1880, and treated the taxon *scalarina* as its variety, placing it in the genus *Amnicola* and not in the genus *Bithynia* as she previously did in the Matériaux. In this work, Paulucci (1880b) provided an illustration and a more complete description in Latin and Italian (Paulucci, 1880b, p. 203, pl IX, fig. 8): "Testa elongatiuscula; anfract. minus ventricosus, ultimo prope aperturam breviter solutum. Long. 4; lat. 2 ²/₃ mill. La Var. *scalarina*, si distingue per una forma più svelta e

albo-labiatum, labio infundibuliformi; lamellae ut in Cl. succineata, Ziegler, sed subcolumellaris oblique intuenti fere conspicua; plica suturalis nulla vel indistincta, principalis ultra palatalem superam satis elongata. -Long. 11, diam. 3 mill. Apert. 3 mill. long., $2\frac{1}{4}$ lata".

Type locality: described from "... Monte Maiella, Aprutium Ulterius secundum".

Type material: syntypes, 4 shells. MZUF: "Monte Majella Abruzzo Ulter. 2^{da}" GC/13527 (es. 4 shells).

Current status: Family: Clausiliidae Gray, 1855; Genus:

Dilataria Vest, 1867; Species: *Dilataria boettgeriana* (Paulucci, 1878).

Remarks: in two subsequent works, Paulucci (1878c, p. 358; 1881b, p. 133) reconsidered this species; while in the first paper she reported the same diagnosis in Latin, in the second she prepared an illustration: pl. 3, figs. 4, 4a-d. *Dilataria boettgeriana* (Paulucci, 1878) is considered a valid species (Alzona, 1971; Nordsieck, 2007) and, as such, is reported in recent literature (Bank & Neubert, 2017).

Carychium Mariae Paulucci, 1878 (Fig. 44)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 15, n° 383; p. 41, note 78.

Original description: "Testa minutissima, subrimata, sub lente valide longitudinaliter, elegantissime striata et obesa; spira conica, apice obtusiusculo; anfractus 5 convexi, ultimus ac penultimus turgido-ventrosi; apertura obliqua, acuminato-ovalis; pariete aperturali denticulo valido, elongato, compresso munita; peristomate labiato, marginibus callo junctis, dextro sinuoso medio valide noduloso. - Long. $1\frac{1}{2}$ diam. 1 mill. Cette espèce diffère de toutes les autres par sa forme plus obèse, par ses stries plus fortes, plus distancées les unes des autres, par son ouverture courte, très-élargie et évasée dans sa partie supérieure, un peu comme dans le C. Orbignyanum, Bourguignat, Am. Malac, 2, pl. 15. fig. 8 (espèce fossile), mais descendant en droite ligne comme dans les C. tridentatum, Risso et striolatum, Bourg. La dent pariétale est tout aussi longue que dans le C. tridentatum, mais plus oblique".

Type locality: described from "... Lombardie, des provinces de Brescia et de Como ...". Detailed localities from type material.

Type material: syntypes, 241 shells. MZUF: "Esino Provincia di Como" GC/13599 (32 shells); "Castelgoffredo" GC/11971 (6 shells), GC/11985 (1 shell), "Castelgoffredo Prov. di Brescia" GC/13600 (202 shells).

Current status: Family: Carychiidae Jeffreys, 1830; Genus: *Carychium* Müller, 1773; Species: *Carychium minimum* Müller, 1774.

Remarks: Paulucci (1878c, pp. 358-359) reported the Latin diagnosis of the taxon. *Carychium mariaae* was considered a valid species for several authors (Zimmermann, 1925; Strauch, 1977; Bank & Gittenberger, 1985; Bank & Neubert, 2017), but Weigand et al. (2012) demonstrated, on genetic data, the synonymy with *C. minimum*, therefore *C. mariaae* represented only a morphotype.

Pomatias Pirajni Paulucci, 1878 (Fig. 45)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 18, n° 450.

Original description: "Ben. Moll. Sicil., pl. 6, fig. 26".

Type locality: described from "Sic.le" [Sicily]. Detailed locality from type material.

Type material: syntypes, 2 shells. MZUF: "Isola Favignana", GC/13693 (2 shells).

Current status: Family: Megalostomatidae Blanford, 1864; Genus: *Cochlostoma* Jan, 1830; Subgenus: *Auritus* Westerlund, 1883; Species: *Cochlostoma (Auritus) paladilhianum* (Saint Simon, 1869); Subspecies: taxon inquirendum.

Remarks: Paulucci used the name *P. pirajini* reporting the name from Benoit (1876) and correlating it to fig. 26 of table 6 and therefore this specific name is attributable to Paulucci and not to Benoit (see the Introduction). A detailed description was then provided for the specimens from the island of Favignana, received by Benoit (Paulucci, 1879e): "Testa perforata, conica, basi ventrosula, pallide fulvo-cornea, nitidula, albido-costata (costae sat distantes, regulares, obliquae, substrictae ver inferae subsinu-

sae, usque ad aperturam distinctae, interstitiis planis, loevibus); anfract. 8-8, $\frac{1}{2}$; superi cylindracei, ceteri convexiusculi, ultimus circa regionem umbilicalem subangulatus; antice non ascendens, apertura verticalis rotundata, palato fulvido; peristoma simplex, patulum, callo pertenui in pariete vix continuum, intus album, nitidum, margini exteriori subauriculato, columellari superne pone anfractum contiguum sinuato; Diam. 3, Long. $7\frac{1}{2}$ mill." [Perforated shell, conical, convex at the base, pale yellowish-horny, shiny, with whitish ribs (ribs quite distant, regular, oblique, fairly tight and subsinuous below, distinct up to the opening, flat and smooth interstices), 8-8 $\frac{1}{2}$ whorls, the upper cylindrical, the remaining convex, the last subangulated approximately in the umbilical area, not ascending anteriorly, rounded vertical aperture, yellowish mouth; simple, broad peristome, very slight continuous parietal callus, white, shiny interior, subauriculate outer margin, sinuous adherent columellar margin at above the last whorl; Diameter 3, Height $7\frac{1}{2}$ mm.]. Zilch (1958) considered *P. pirajni* a valid taxon at subspecific level, while Manganello et al. (1995) and Bank & Neubert (2017) simply considered it synonymous with

Bova" GC/13548 (8 shells); "*Bova sul Castello*" GC/13549 (6 shells); "*Palizzi*" GC/13553 (12 shells); "*Palizzi sulle roccie calcaree*" GC/13546 (20 shells), GC/13547 (9 shells), GC/13550 (24 shells), GC/13657 (4 shells).

Current status: Family: *Clausiliidae* Gray, 1855; Genus: *Papillifera* Hartmann, 1842; Species: *Papillifera solida* (Draparnaud, 1805); Subspecies: *Papillifera solida deburghiae* (Paulucci, 1878).

Remarks: Paulucci (1878c, pp. 357-358; 1880b, pp. 152-153) re-examined the species. In her first work, she reported the description in Latin only, in the second one in addition to the Latin description she provided one in Italian and illustrated the species in the pl. VIII figs. 1, 1a-d: "*Conchiglia rimata, gracile, fusiforme, solida, color seta cruda, costulato-striata, costoline fitte, filiformi, biancastre; spira assottigliata, apice liscio, ialino, mamillato. Anfratti 11-12 pressoché piani, sutura crenulata, non marginata né papillifera, l'ultimo fortemente costulato vicino all'apertura; leggermente bicristato alla base; apertura quasi piriforme, sinulo largo quadrangolare; lamelle piccole, l'inferiore arcuata profonda; lunella distinta raggiungente la sutura; piega subcolumellare quasi immersa; peristoma continuo, leggermente protratto ed allargato; callo palatale distinto, parallelo al margine, superiormente e inferiormente assai ingrossato*" [Rhymed shell, slender, fusiform, solid, raw silk colour, ribbed-streaked, dense, filiform, whitish ribs; thinned

spire, smooth apex, hyaline, mamillate. Almost flat whorls 11-12, crenulated suture, neither marginated nor papillary, the last strongly ribbed near the opening; with two slight ridges on the base; almost pyriform opening, wide quadrangular sinulus; small lamellae, the lower arched deep; distinct lunella reaching the suture; almost submerged subcolumellar fold; continuous, slightly protracted and enlarged peristoma; distinct palatal callus, parallel to the margin, superiorly and inferiorly very enlarged]. Forcart (1965) designated a restricted type locality: "*Prov. Reggio di Calabria, Palizzi*". However, the restricted type locality was not valid, because a lectotype was not designated (Article 76.2 of the ICZN, 1999 Code). Paulucci (1878a) also mentioned it for Sicily, but there were no samples in the Paulucci collection from this region; according to Nordsieck (2013b) "*P. s. deburghiae* has been confused by O. Boettger (1878: 51, Paulucci 1878a: 39) with the ribbed subspecies of *P. bidens* from Sicily, *P. b. tinei* (see Nordsieck 2011)". Manganeli et al. (1995) considered *Papillifera deburghiae* (Paulucci, 1878) a valid species, basing this supposition on the populations from the Pollino mountains, populations that Nordsieck (2013b) later described as *Papillifera solida diabolina* Nordsieck, 2013. Nordsieck (2013b) therefore assigned *P. deburghiae* as valid subspecies of *P. solida*, and Bank & Neubert (2017) accepted its status.

Clausilia (Papillifera) Deburghiae Var. *cylindrelloides* Paulucci, 1878 (Fig. 42)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 14, n° 340; pp. 39-40, note n. 69.

Original description: "*Avec le type, en rencontre une charmante variété toute mince et élancée, qui fait songer la forme d'une Cyindrele. Aussi l'ai-je nommée Var. cylindrelloides. Cette forme paraît relativement assez rare, elle mesure 15 mill. de longueur, sur 3 à peine de large; la coquille n'est nullement renflée sur les tours du milieu*".

Type locality: described from "... Italia meridionali, Calabria et Sicilia (Boettger)". Detailed localities from type material.

Type material: syntypes, 7 shells. MZUF: "*Castello di Bova*" GC/13552 (es. 1 shell); "*Palizzi sulle Roccie calcaree*" GC/13551 (es. 6 shells).

Current status: Family: *Clausiliidae* Gray, 1855; Genus:

Papillifera Hartmann, 1842; Species: *Papillifera solida* (Draparnaud, 1805); Subspecies: *Papillifera solida deburghiae* (Paulucci, 1878).

Remarks: Paulucci (1880b, p. 154) provided a description in Italian: "*3° cylindrelloides, che è notevole per la sua forma elegante, snella e sottilissima. Questa misura su 15 mill. di lunghezza, 3 mill. scarsi di larghezza, non è punto rigonfia nel mezzo della conchiglia, talchè ha proprio la forma di alcune CYLINDRELLA.*" [3° cylindrelloides, which is notable for its elegant, slender and very thin shape. This measures about 15 mill. long, 3 mm scarce in width, it is not swollen in the middle of the shell, so that it has the shape of some *Cylindrella*.], and an illustration pl. 8, figs. 2, 2a for Palizzi. In addition, in this case the report for Sicily should be considered erroneous. According to Bank & Neubert (2017), it is a synonym of *Papillifera solida deburghiae* (Paulucci, 1878).

Clausilia (Dilataria) Boettgeriana Paulucci, 1878 (Fig. 43)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 14, n° 317; p. 40, note 70.

Original description: "*Testa punctiformi-rimata, elevato-fusiformis, subventricosa, solidula, nitida, lutescenti-olivacea; spira attenuata; apice obtusiusculo; anfract. 9 convex-*

iusculi, sutura irregulariter crenulata disjuncti, subtiliter striati, striis rudibus, rugulosis, subarcuatis; anfractus ultimus fere 1/2, omnis altitudinis aequans, parum inflatus, dorso deplanatus, fere obsolete costulato-striatus, ad aperturam subconstrictus, flavo-perlucens; apertura piriformis; peristoma continuum, subappressum, parum expansum, reflexiusculum, acutiusculum, sub sinulo dentiformi incrassatum,

et infra magis incrassatus; long. 15-17, diam. $3\frac{3}{4}$ mill.; apert. 4 mill. longa, 3 lata. Accedit a Cl. bidente Linnei, Var. virgata, Jan, ad Cl. Deburghiam, Paulucci.”

Type locality: described from “... Italia meridionali, Calabria”. Detailed localities from type material.

Type material: syntypes, 70 shells. MZUF: “Monte Consolino”, GC/13533 (1 shell), GC/13539 (13 shells), GC/13540 (8 shells), GC/13541 (5 shells), GC/13545 (5 shells); “Stilo sulle roccie” GC/13534 (6 shells), GC/13535 (3 shells); “Monte Stella presso l'Eremitaggio” GC/13536 (14 shells), GC/13537 (7 shells), GC/13538 (6 shells), GC/13544 (2 shells).

Current status: Family: *Clausiliidae* Gray, 1855; Genus: *Papillifera* Hartmann, 1842; Species: *Papillifera papillaris* (Müller, 1774); Subspecies: *Papillifera papillaris transitans* (Paulucci, 1878).

Remarks: Paulucci (1878c, p. 357) repeated the description in Latin, while in Paulucci (1880b, pp. 151-152) the remarks were more extensive with the repetition of the description in Latin, followed by that in Italian: “*Conchiglia assai grande, profondamente rimata, regolarmente fusiforme, solida, fortemente costulata; bigio celestognola, costoline biancastre; spira turrita, acuta, apice corneo, liscio, sutura crenulata, fornita di piccole papille bianche, marginata di rosso; anfratti 10-11 assai ripianati; quasi bicristata alla base; apertura arrotondata, piriforme, subcanaliculata alla base; lamella superiore subimmersa, inferiore forte, arcuata;*

lunella che arriva sino alla sutura; piega subcolumellare quasi immersa; peristoma continuo, leggermente protratto e ripiegato; callo palatale parallelo al margine, più o meno distinto, superiormente ed inferiormente ingrossato. Abita il Monte Consolino! e il Monte Stella!**” [Very large shell, deeply rhymed, regularly fusiform, solid, strongly ribbed; light blue gray, whitish ribs; turreted spire, acute, corneal apex, smooth, crenulated suture, provided with small white papillae, bordered with red; whorls 10-11 very leveled; almost with double crest at the base; rounded opening, pyriform, subcanaliculate at the base; upper lamella submerged, lower strong, arched; lunella that reaches up to the suture; almost submerged subcolumellar fold; continuous, slightly protracted and folded peristoma; palatal callus parallel to the margin, more or less distinct, superiorly and inferiorly enlarged. It lives on Monte Consolino!* and Monte Stella!*]. The description was completed with the representation in pl. 7, figs. 8-8a-c. Forcart (1965) designated a restricted type locality: “*Prov. Reggio di Calabria, Mte. Concolino [Consolino] bei Stilo*”. However, the restricted type locality is not valid because a lectotype was not designated (Article 76.2 of the ICZN, 1999 Code). Nordsieck (2013b) considered this taxon as a valid subspecies of *Papillifera bidens* (Linnaeus, 1758), currently *P. papillaris transitans* (*P. bidens* is presently assigned to the genus *Cochlodina*). Bank & Neubert (2017) accepted its validity.

Clausilia (Papillifera) transitans Var. *gracilis* Paulucci, 1878 (Fig. 40)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 13, n° 336; p. 39, note 68.

Original description: “*Cette forme se modifie pour devenir quelquefois excessivement grêle, je l'ai désignée dans ma collection sous le nom de Var. gracilis. On en rencontre aussi des exemplaires à spire tronquée.*”

Type locality: described from “... Italia meridionali, Calabria”. Detailed localities from type material.

Type material: syntypes, 8 shells. MZUF: “Monte Stella presso l'Eremitaggio” GC/13542 (5 shells), “Monte Consolino” GC/13543 (3 shells).

Current status: Family: *Clausiliidae* Gray, 1855; Genus: *Papillifera* Hartmann, 1842; Species: *Papillifera papillaris* (Müller, 1774); Subspecies: *Papillifera papillaris transitans* (Paulucci, 1878).

Remarks: Nordsieck (2013b) did not mention this variety by Paulucci but considered *C. transitans* as a valid subspecies of *Papillifera bidens* (Linnaeus, 1758), at present *P. papillaris transitans* (*P. bidens* is currently assigned to the genus *Cochlodina*). Bank & Neubert (2017) reported the variety as a synonym of *P. papillaris transitans*.

Clausilia (Papillifera) Deburghiae Paulucci, 1878 (Fig. 41)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 14, n° 340; p. 39-40, note 69.

Original description: “*Testa rimata, gracilis, fusiformis, solida, sericina, pallide isabellina, costulato-striata, costulis confertis, filiformibus, albescentibus; spira attenuata, apice laevi, hyalino, mamillato; anfrac. 11-12 subplani, sutura crenulata, non marginata, neque papillifera disjuncti, ultimus antice magis costulatus, basi laeviter bicristatus, cristis inaequalibus, sulco divisus; apertura subpiriformis, sinulo lato*

quadrangulo; lamellis parvis, infera arcuata, profunda; lunella distincta, suturam attingens; plica subcolumellaris fere immersa; peristoma continuum, parum protractum breviter expansum; callus palatalis distinctus, margine parallelus supra et infra valde incrassatus. - Long. 14-17, lat. $3\frac{3}{4}$ mill. Apert. $3\frac{1}{2}$ mill. longa, $2\frac{3}{4}$ lata. (Clausilia Tinei, Bourguignat (inédit), teste Boettger).”

Type locality: described from “... Italia meridionali, Calabria et Sicilia (Boettger)”. Detailed localities from type material.

Type material: syntypes, 83 shells. MZUF: “Castello di

***Clausilia (Papillifera) leucostigma* Var. *bulimella* Paulucci, 1878
(Fig. 37)**

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 13, n° 333; p. 39, note 66.

Original description: "T. gibbosa; lamella supera minima, haud deficiente, infera inconspicua; anfr. superiores ad suturam papilliferi., long. 12¹/₂-14, lat. 4¹/₂ mill. ".

Type locality: described from "... dans les murs de la ville de Pérouse (Ombrie) ... ". Other localities from type material.

Type material: syntypes, 38 shells. MZUF: "Mura di

Perugia Umbria", GC/13519 (26 shells), GC/13522 (6 shells); "Assisi Umbria" GC/13521 (4 shells); "Terni Umbria", GC/13520 (2 shells).

Current status: Family: *Clausiliidae* Gray, 1855; Genus: *Leucostigma* Wagner, 1919; Species: *Leucostigma candidescens* (Rossmässler, 1835); Subspecies: *Leucostigma candidescens leucostigma* (Rossmässler, 1836).

Remarks: Nordsieck (2011c) considered this taxon in synonymy with *Leucostigma candidescens leucostigma* (Rossmässler, 1836), also accepted by Bank & Neubert (2017).

***Clausilia (Papillifera) bidens* Var. *circinata* Paulucci, 1878
(Fig. 38)**

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 13, n° 335; p. 39, note 67.

Original description: "... qui tout en étant par son test très-légèrement strié un Cl. bidens, est largement pourvue [sic] du bourrelet qui caractérise le Cl. virgata! ...".

Type locality: described from "... Sicile et aux environs de Naples ...". Other detailed localities from type material.

Type material: syntypes, 87 shells. MZUF: "I. di Capri", GC/11998 (12 shells), "Sorrento", GC/13554 (10 shells); "Salerno", GC/13557 (2 shells); "Aci Castello Sicilia", GC/13556 (20 shells); "Siracusa Teatro Greco", GC/13555 (21 shells); "Dintorni di Siracusa", GC/13658 (16 shells); "Sicilia", GC/13501 (6 shells).

Current status: Family: *Clausiliidae* Gray, 1855; Genus: *Papillifera* Hartmann, 1842; Species: *Papillifera papillaris* (Müller, 1774); Subspecies: *Papillifera papillaris affinis* (Philippi, 1836) (partim) and *Papillifera papillaris papillaris* (Müller, 1774) (partim).

Remarks: with the ICZN Opinion 2355 (Case 3581) (ICZN, 2015), the specific name is defined as *Papillifera papillaris* (Müller, 1774). Nordsieck (2011b) considered *Clausilia (Papillifera) bidens* Var. *circinata* Paulucci, 1878, in synonymy with *P. bidens affinis* (Philippi, 1836), limited to the Sicilian material. The specimens from southern Italy are instead attributed to *P. bidens bidens* (Müller, 1774). Based on this classification, Nordsieck (2011b)

specified the assignment of the samples cited by Paulucci (1878a) to two different subspecies: "P. b. circinata, which I formerly regarded as a subspecies (Nordsieck 2002: 36), is classified with P. b. affinis, because it differs from it only by the sculpture. The var. circinata sensu Paulucci (1878: 39) is double-headed, because it also contains the P. b. bidens from southern mainland Italy with strong palatal callus. As type locality of var. circinata Siracusa, S. E. Sicily, is stated".

In the typical series of the Paulucci collection, in addition to the Sicilian samples, there are two samples from southern Italy (Capri and Sorrento) that, based on Nordsieck (2011b): "I could find a further one, as far as known, restricted to the Penisola Sorrentina and the island of Capri, Campania; it is, simply said, a P. b. bidens with the detached peristome of P. b. affinis" should be attributed to *Papillifera papillaris papillaris* (Müller, 1774). Nordsieck did not examined the typical series by Paulucci but reported the presence in the Forschungsinstitut Senckenberg collection, of specimens from Syracuse "(syntypes SMF)", to which he attributed the status of syntype, without however establishing a lectotype. Bank & Neubert (2017) and Mollusca Base (2020) considered *Papillifera papillaris circinata* (Paulucci, 1878) a valid subspecies, without however justifying this choice; therefore they probably referred to Nordsieck (2002), in which the author considered *P. p. circinata* (Paulucci, 1878) a valid subspecies.

***Clausilia (Papillifera) transitans* Paulucci, 1878
(Fig. 39)**

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 13, n° 336; p. 39, note 68.

Original description: "Testa major, profunde rimata, regulariter fusiformis, solidula, acute costulato striata; griseo-coerulescens, costulis albidis; spira turrata, acuta, apice

corneo, loevi; sutura crenulata; papillis minutis, albidis instructa, rufo marginata; anfract. 10-11, valde planulati; basi fere bis cristata; apertura rotundato-piriformi, basi subcanaliculata; lamella supera humilis, infera valida, arcuata; lunella suturam attingens, distincta; plica subcolumellari submersa; peristoma continuum, protractum, breviter expansum; callus palatalis margini parallelus, plus minusve distinctus, supra

Clausilia (Delima) Paestana Var. *semisculpta* Paulucci, 1878
(Fig. 34)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 12, n° 305; p. 38, note 62.

Original description: "L'autre variété que j'ai désignée sous le nom de *semisculpta*, peut être ainsi caractérisée. *T. castanea, solida, lucida, leviter striatula*; long. 17-19, lat. 4-4,2 mill."

Type locality: described from "... Castellamare et Salerno. Une forme plus renflée de cette même variété vit avec la var. *Neumeyeri*, à Monte Cassino".

Type material: syntypes, 7 shells. MZUF: "Castellamare", GC/13503 (7 shells).

Current status: Family: Clausiliidae Gray, 1855; Genus:

Siciliaria Vest, 1867; Subgenus: *Stigmatica* Boettger, 1877; Species: *Siciliaria (Stigmatica) paestana* (Philippi, 1836); Subspecies: *Siciliaria (Stigmatica) paestana paestana* (Philippi, 1836).

Remarks: synonym of *Siciliaria (Stigmatica) paestana paestana* (Philippi, 1836) (Nordsieck, 2013b). Nordsieck (2013b) assigned the species to the genus *Siciliaria* (subgenus *Stigmatica*), and considered *Siciliaria* and *Charpentieria* Stabile, 1864 independent genera, rather than synonyms at the genus level as accepted by Bank & Neubert (2017). This separation appeared to be based on anatomical characters and genetic studies, and was confirmed by Reier et al. (2019).

Clausilia (Siciliaria) Grohmanniana Var. *Panormitana* Paulucci, 1878
(Fig. 35)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 13, n° 321.

Original description: "Ben. Moll. Sicil., pl. 6, fig. 3".

Type locality: described from "Sicile" [Sicily]. Detailed locality from type material.

Type material: syntypes, 13 shells. MZUF: "Monte Pellegrino", GC/60962 (6 shells), GC/62342 (7 shells).

Current status: Family: Clausiliidae Gray, 1855; Genus: *Siciliaria* Vest, 1867; Subgenus: *Siciliaria* Vest, 1867; Species: *Siciliaria (Siciliaria) grohmanniana* (Rossmässler, 1836).

Remarks: Paulucci (1878a, p. 13) attributed this taxon to Bourguignat *vide* Benoit (1876, p. 151), but the French

author will never publish this name. In his publication, Benoit (1876) did not provide any description or combination with the tables already published. The taxon was considered in synonymy with *Siciliaria (Siciliaria) grohmanniana* (Rossmässler, 1836) as early as 1879 by Kobelt (1879, p. 86, pl. 171, fig. 1726) and this synonymy was recently confirmed by Nordsieck (2013a). Nordsieck (2013a) considered *Siciliaria* and *Charpentieria* Stabile, 1864 independent genera, rather than synonyms at the genus level as accepted by Bank & Neubert (2017). This separation appeared to be based on anatomical characters and genetic studies, and was confirmed by Reier et al. (2019).

Clausilia (Siciliaria) Tiberiana (Paulucci, 1878)
(Fig. 36)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 13, n° 326.

Original description: "Benoit. Moll. Sicil., pl. 6, fig. 7".

Type locality: described from "Sicile" [Sicily]. Detailed localities from type material.

Type material: syntypes, 10 shells. MZUF: "Dintorni di Palermo", GC/58123 (5 shells); "San Giuseppe delle Mortelli; San Cosimo", GC/61083 (5 shells).

Current status: Family: Clausiliidae Gray, 1855; Genus: *Siciliaria* Vest, 1867; Subgenus: *Siciliaria* Vest, 1867; Species: *Siciliaria tiberii* (Schmidt, 1868); Subspecies: *Siciliaria tiberii tiberii* (Schmidt, 1868).

Remarks: Benoit (1876, p. 152), in dealing with this taxon, mentioned the name *C. Tiberiana* without any description. Later on, Benoit (1882, p. 107) corrected the previous name to *C. tiberii*. Paulucci used the name

C. tiberiana from the work of Benoit (1876) and correlated it to fig. 7 of table 6 by Benoit (1859) and therefore this name is attributable to Paulucci and not to Benoit (see the Introduction). Schmidt (1868) already described this taxon with the name *C. tiberii*, attributing the name assigned by Benoit to the specimens he received from him. Therefore, the taxon *C. tiberiana* Paulucci, 1878, is a junior synonym of *C. tiberii* Schmidt, 1868. Nordsieck (2013a) and Bank & Neubert (2017) considered *Siciliaria tiberiana* (Paulucci, 1878) in synonymy with *S. tiberii* (Schmidt, 1868). Nordsieck (2013a) considered *Siciliaria* and *Charpentieria* Stabile, 1864 independent genera rather than synonyms at the genus level as accepted by Bank & Neubert (2017). This separation appeared to be based on anatomical characters and genetic studies, and was confirmed by Reier et al. (2019).

from these sites no specimens are currently in the Paulucci collection, the other sites of the Paulucci material are mostly located in the range area of *S. vulcanica vulcanica* and the material seems almost all referable to this species (with the sole exception of a specimen from “Piano di Melia grotta di Tremisi”, of uncertain attribution). It is therefore likely that *C. Kobeltiana* Var. *furcata* must refer to several different species (*S. ko-*

beltiana and *S. v. vulcanica*). Nordsieck (2013b) assigned *D. kobeltiana* to the genus *Siciliaria* (subgenus *Stigmatica*), and considered *Siciliaria* and *Charpentieria* Stabile, 1864, independent genera, rather than synonyms at the genus level, as accepted by Bank & Neubert (2017). This separation would be based on anatomical characters and genetic studies, and was confirmed by Reier et al. (2019).

Clausilia (Delima) Kobeltiana Var. *contorta* Paulucci, 1878 (Fig. 32)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles: p. 12, n° 302; p. 37, note 60.

Original description: “Var. b. *Lamella columellaris contorta, non furcata*”

Type locality: described from “... Calabre ...” [Calabria]. Detailed localities from type material.

Type material: syntypes, 70 shells. MZUF: “Pizzo strada dei Prangi”, GC/56569 (11 shells); “Colle che domina Pizzo”, GC/56572 (5 shells); “Ruderi del Castello di Bivona”, GC/13506 (12 shells); “Mileto nell'orto del signor Sodero”, GC/56574 (6 shells); “Falde del Monte St Elia”, GC/13507 (7 shells), GC/56571 (3 shells); “Oppido Vecchio”, GC/56570 (11 shells); “Santa Cristina Vecchia”, GC/13508 (7 shells); “Castello di Scilla”, GC/13509 (5 shells); “Sotto una siepe a Melia”, GC/56573 (3 shells).

Current status: Family: Clausiliidae Gray, 1855; Genus: *Siciliaria* Vest, 1867; Subgenus: *Stigmatica* Boettger, 1877; Species: *Siciliaria (Stigmatica) kobeltiana* (Küster, 1876) (partim) and *Siciliaria (Stigmatica) cf. vulcanica vulcanica* (Paulucci, 1878) (partim).

Remarks: the same description is also reported in Paulucci (1880b, p. 144); in the same work this variety is il-

lustrated in pl. VII, fig. 6, with a specification on the collection location “... Monteleone ...”. Forcart (1965, p. 117) reported as type locality for this variety “Prov. Catanzaro: Vibo Valentia (= Mte. Leone)”; however, the restricted type locality is not valid because a lectotype has not been designated (Article 76.2 of the ICZN, 1999 Code). Furthermore, Forcart (1965) considered the taxon in synonymy with *Delima (Delima) Kobeltiana* Küster, 1876; this synonymy was accepted by Nordsieck (2013b) who pointed out the distribution of the species. While Bivona and Vibo Valentia fall within the *S. kobeltiana* range area according to Nordsieck (2013b), the other locations of the Paulucci material are mostly located in the *S. vulcanica vulcanica* range area and the material seems quite referable to this species. It is therefore likely that *C. Kobeltiana* Var. *contorta* must refer to several different species (*S. kobeltiana* and *S. v. vulcanica*). Nordsieck (2013b) assigned *D. kobeltiana* to the genus *Siciliaria* (subgenus *Stigmatica*), and considered *Siciliaria* and *Charpentieria* Stabile, 1864, independent genera, rather than synonyms at the genus level, as accepted by Bank & Neubert (2017). This separation appeared to be based on anatomical characters and genetic studies, and was confirmed by Reier et al. (2019).

Clausilia (Delima) vulcanica Paulucci, 1878 (Fig. 33)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles: p. 12, n° 304.

Original description: “Ben. Moll Sicil., pl. 6, fig. 18”.

Type locality: described from “Sicile” [Sicily]. Detailed localities from type material.

Type material: syntypes, 11 shells. MZUF: “Nicosia Falde dell'Etna”, GC/58270 (6 shells); “Via che da Aci-Trezza mena a Catania”, GC/62339 (5 shells).

Current status: Family: Clausiliidae Gray, 1855; Genus: *Siciliaria* Vest, 1867; Subgenus: *Stigmatica* Boettger, 1877; Species: *Siciliaria (Stigmatica) vulcanica* (Paulucci, 1878); Subspecies: *Siciliaria (Stigmatica) vulcanica vulcanica* (Paulucci, 1878).

Remarks: this taxon is considered by Boettger (1879)

and Giusti (1973a) as a subspecies of *Clausilia gibbula*. Nordsieck (2013b) reviewed the taxon on anatomical and shell characters, confirming it as a separate species, set as *Siciliaria (Stigmatica) vulcanica* (Paulucci, 1878), and describing another subspecies. Nordsieck (2013b) considered *Siciliaria* and *Charpentieria* Stabile, 1864 independent genera, rather than synonyms at the genus level as accepted by Bank & Neubert (2017). This separation appeared to be based on anatomical characters and genetic studies, and was confirmed by Reier et al. (2019). The species should not be attributed to Benoit (1859) as reported in Bank & Neubert (2017) as the name was not mentioned in Benoit's work (Welter-Schultes, 2012), and therefore this name is attributable to Paulucci (see what already reported in the introduction).

noit, 1876, 1882a, 1882b). In the first of the two tables published in 1859, the author reported the figures of four taxa assigned to *Rupestrella* (pl. 5, figs. 35, 36, 37, 38); however, the captions were not published in the table, thus these taxa were left without a name. In the following text by Benoit (1876, p. 149) four species were reported: "130. *P. occulta*, Parreys; 131. *P. rupestris* (*Bulimus*), Philippi; 132. *P. scalaris*, Benoit; 133. *P. Philippi* Cantraine" without description, only with the collection localities and without correlating the text to the figures in the 1859 table. Specifically, Benoit (1876) reported, on p. 149 "*P. scalaris*, Benoit. *Pupa rupestris* var, Bivona fl., Calcara". Paulucci (1878a) took up the species names reported by Benoit (1876) associating the name *P. scalaris* to the table by Benoit (Paulucci, 1878a, p. 10: "258 18 *scalaris* (55) Benoit Ben. Moll. Sicily, pl. 5, fig. 37"), thus making the name of the taxon available. Benoit (1882, p. 96) described *P. scalaris* by associating it with fig. 37 of table 5, but only after Paulucci's paper, therefore the taxon at present should be attributed to Paulucci, 1878a. Beckmann (2002), in the context of the revision of the genus *Rupestrella* from Sicily, correctly attributed the species name of *P. scalaris* Paulucci, 1878, to *Rupestrella occulta* (Rossmässler, 1839), but did not consider *P. scalaris* Paulucci, 1878, an available name, as already used by *P. scalaris* Benoit, 1876, which in turn Beckmann (2002) attributed to *R. rupestris*, as referring to var. b by Bivona (1840). However, Benoit (1876) in assigning the species name *scalaris* to the variety of Bivona (1840) did not referred to the var. b as reported by Beckmann (2002, p. 58), taxa referable to *R. rupestris*, but only to "var." by Bivona.

Benoit (1876) had already clear from the tables, published in 1859, the four species of Sicilian *Rupestrella* which he will also name in 1876 without describing them, and will explain in 1882 (pp. 95-96) how Bivona, in 1840, under the name of *rupestris*, grouped three en-

titles: "Il Barone Andrea Bivona in una memoria pubblicata nel 1840 descrive col nome di *P. rupestris* [sic], tre conchiglie molto distinte fra loro. Egli considera come tipo della specie quella con l'apertura tridentata e come varietà quella senza denti o con un sol dente. Evidentemente la prima deve riferirsi alla *P. occulta*, Parr., la seconda alla *P. Rupestris* e la terza alla nostra *P. scalaris* [Baron Andrea Bivona in a memoir published in 1840 describes with the name of *P. rupestris* [sic], three very distinct shells. He considers as the type of the species the one with the tridentate opening and varieties the one without teeth or with a single tooth. Evidently the first one must refer to *P. occulta*, Parr., the second to *P. rupestris* and the third to our *P. scalaris*]. Therefore, *P. scalaris* Benoit, 1876, must be considered as *nomen dubium*, as it can be attributed partly to *R. rupestris* and partly to *R. scalaris*.

Beckmann (2002) considered *P. scalaris* Paulucci, 1878, at the subspecific level, as a synonym of *R. occulta gibilfunnensis* (De Gregorio, 1895). On the other hand, *P. scalaris* Paulucci, 1878, as shown above, must be considered an available name and therefore should have priority over *P. gibilfunnensis*. The subspecies of *Rupestrella* do not always have distinct ranges, but since many historical data come from imprecise locations, the ranges need to be better verified. However, the different populations should be revised based on genetic data, currently not available, as the characters considered at a taxonomic level, such as the number of teeth on the opening, are very variable even within the same subspecies, as noted also by Renda et al. (2011). *P. scalaris* is a shell characterized by a strong carina in the middle part of the coils, which makes it unmistakable, with variable opening in the number of teeth, from one to three. Pending a necessary genetic revision of the Sicilian *Rupestrella*, it is preferred to attribute *P. scalaris* to *R. occulta*, and to consider *R. occulta scalaris* (Paulucci, 1878) at the subspecific level, but as a *taxon inquirendum*.

Clausilia (Delima) Kobeltiana Var. *furcata* Paulucci, 1878 (Fig. 31)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 12, n° 302; p. 37, note 60.

Original description: "Var. a. *Lamella columellaris furcata*, non *tuberculata*".

Type locality: described from "... Calabre ..." [Calabria]. Detailed localities from type material.

Type material: syntypes, 56 shells. MZUF: "*Pizzo strada dei Prangi*", GC/13513 (7 shells); "*Colle che domina Pizzo*", GC/13516 (1 shell); "*Palmi in un giardino*", GC/13514 (3 shells), GC/13517 (7 shells); "*Pietre Nigre Presso Palmi*", GC/13518 (22 shells); "*Falde del Monte St Elia*", GC/13511 (2 shells); "*Oppido Vecchio*", GC/13510 (9 shells); "*Santa Cristina Vecchia*", GC/13512 (4 shells); "*Piano di Melia grotta di Tremisi*", GC/13515 (1 shell).

Current status: Family: Clausiliidae Gray, 1855; Genus: *Siciliaria* Vest, 1867; Subgenus: *Stigmatica* Boettger, 1877;

Species: *Siciliaria (Stigmatica) vulcanica vulcanica* (Paulucci, 1878) (partim) and *Siciliaria (Stigmatica) kobeltiana* (Küster, 1876) (partim).

Remarks: the same description is also reported in Paulucci (1880b, p. 144); in the same work this variety is illustrated in pl. VII, fig. 7, with a specification on the collection locality "... rovine del castello di Bivona ..." [... ruins of the Bivona castle ...]. Forcart (1965, p. 117) reported as type locality for this variety "Prov. Catanzaro: Vibo Valentia (= Mte. Leone)"; however, the restricted type locality is not valid because a lectotype was not designated (Article 76.2 of the ICZN, 1999 Code). Furthermore, Forcart (1965) considered the taxon in synonymy with *Delima (Delima) Kobeltiana* Küster, 1876; this synonymy was accepted by Nordsieck (2013b) who pointed out the distribution of the species. While Bivona and Vibo Valentia fall within the diffusion area of *S. kobeltiana* according to Nordsieck (2013b), but

mens with fig. of the Bullett. 1869, I brought it in the 1876 summer to Dr. Kobelt in Schrvankeun who repeated to me that this was the *H. campana* Tiberi and showed me its figure in Rossmass. to represent it. Then I had the *H. campana* Tiberi and although I opine that this is also an extreme variety of *H. ligata*, I declare this one is sensibly distinct from this. I thank Dr. Tiberi etc. etc.]. Later on Paulucci (1880b, pp. 122-124) reported further infor-

mation on this taxon. Giusti (1973b, pp. 549-554) treated the taxon as a specific species, *Helix (Helix) delpretiana*, revising and confirming the validity of the name (ICZN, 1999 Code, article 16, Giusti, 1973, pp. 556, 558). In Fiorentino et al. (2016) the taxon was reported with the name of *Helix pomatella* Kobelt, 1876, a set taken up by Bank & Neubert (2017) which also added the sub-generic context *Helix (Helix) pomatella*.

Helix (Helicogena) pomatia Var. *pseudoligata* Paulucci, 1878 (Fig. 29)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 8, n° 205; p. 35, note 47.

Original description: "J'ai nommé une variété de cette espèce *pseudoligata*, comme antithèse de la Var. *pseudopomatia*, Blanc. Je dois répéter à propos de cette forme ce que j'ai dit à propos de l'*H. ligata*. Il n'y a, à mon point de vue, aucune raison réelle pour que celle-ci soit un *pomatia* et que l'autre soit un *ligata*, à part la distribution géographique. Mes exemplaires ... L'un d'eux est ombiliqué, l'autre ne l'est pas. Que conclure de ces rapprochements? Je laisse à d'autres plus savants que moi le soin d'expliquer ces faits".

Type locality: described from "... environs de Firenzuola d'Arda, dans la province de Plaisance. "

Type material: syntypes, 2 shells. MZUF: "Circondario di Firenzuola d'Arda, estremo contrafforte settentrionale dell'Appennino", GC/1788 (2 shells).

Current status: Family: *Helicidae* Rafinesque, 1815; Genus: *Helix* Linnaeus, 1758; Subgenus: *Helix (Helix)* Linnaeus, 1758; Species: *Helix (Helix)* cf. *pomatia* Linnaeus, 1758.

Remarks: the name assigned by the author underlined the similarity of this taxon to *Helix ligata* Müller, 1774, but given that in the original description there was only one character, which was variable and therefore not diagnostic, this taxon should be considered *nomen nudum*. Few authors cited this taxon, considering it valid, without any comment (Cianfanelli & Manganelli, 2002), while Taylor (1914) and Korábek (2011), following what Paulucci (1878a) hypothesized, attributed it to *Helix (Helix) pomatia* Linnaeus, 1758. However, this attribution, based on the geographic distribution (Emilia-Romagna, hence northern Italy instead of central-southern Italy as for *Helix ligata* Müller, 1774), was entirely speculative. This taxon had a shell not entirely assigned to the typical forms of *H. pomatia*; only recently, it was anatomically studied and the anatomy coincided with that of *H. pomatia* (personal unpublished data). Given that many species of *Helix* were identifiable, with certainty, only genetically (Neubert, 2014; Korábek et al. 2015a, 2015b; Fiorentino et al., 2016) for the moment, this taxon was assigned to *H. pomatia* only for comparison.

Pupa (Torquilla) scalaris Paulucci, 1878 (Fig. 30)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 10, n° 258; p. 36, note 55.

Original description: "Ben. Moll. Sicilia, pl. 5, fig. 37".

Type locality: described from "... Monte Cuccio, près Palermo."

Type material: syntypes, 3 shells. MZUF: "Monte Cuccio presso Palermo", GC/17758 (3 shells).

Current status: Family: *Chondrinidae* Steenberg, 1925; Genus: *Rupestrella* Monterosato, 1894; Species: *Rupestrella occulta* (Rossmässler, 1839); Subspecies: *taxon inquirendum*.

Remarks: as explained in the Introduction, the species names reported in Paulucci (1878a) referring to the tables by Benoit (1859) without captions or description, and cited in a subsequent work by Benoit (1876), but also there without description or reference to the previous tables by Benoit (1859), were just available in Paulucci (1878a), as in this paper only the names referred to

an illustration (IZCN, 1999, art. 10-12). Benoit (1882a, pp. 95-96; 1882b, pp. 136-137), in fact, attributed a species name, a description and even an illustration, only later to Paulucci (1878a). One of the most complex of these cases was the one related to *Pupa (Torquilla) scalaris* Paulucci, 1878. Bivona (1839, 1840) mentioned *Pupa rupestris*, redescribing it in 1839 as a new species (1839: pp. 18-19, figs. 8 ab, 9 ab; 1840: pp. 84-85, figs. 4 ab, 5 ab), when *Bulimus rupestris* was already described by Philippi (1836). While the var. b, which was described, albeit vaguely, referred to *Bulimus rupestris* Philippi, 1836 (Fig. 9 "Var. b *Pupae rupestris*"), the other figure (Fig. 8 "*Pupa rupestris*"), corresponded to *Pupa occulta* Rossmässler, 1839. However, this was not described but attributed to Philippi's *Bulimus rupestris*. Therefore, even if the figure represented *Rupestrella occulta*, actually *Rupestrella rupestris* by Bivona should be attributed to *R. rupestris* by Philippi. Between 1857 and 1862 Benoit published the tables that should be associated with the treatises published later, between 1876 and 1882 (Be-

Helix (Iberus) carsoliana Var. *Uzielliana* Paulucci, 1878
(Fig. 27)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 8, n° 196; p. 34, note 44.

Original description: "La troisième variété, que j'ai nommée Uzielliana, est relativement très-déprimée, à ouverture allongée, à bord columellaire foncé, à ombilic décidément ouvert. C'est la forme que tous les auteurs envisagent comme type de l'espèce et qu'on nomme H. Carsoliana. Le Dr. Kobelt l'a représentée dans la continuation de Rossmässler, fig. 1175 et 1176".

Type locality: described from "Sud E., Sud O." [south eastern and south western Italy]; "... Monte Maiella ...". Other localities from type material.

Type material: syntypes, 25 shells. MZUF: "Valle d'Orfenda", GC/2899 (7 shells), GC/2900 (2 shells); "Borello Abruzzo Citeriore", GC/2897 (4 shells); "Monte Maiella Abruzzo", GC/2902 (8 shells), GC/2903 (4 shells).

Current status: Family: *Helicidae* Rafinesque, 1815; Genus: *Marmorana* Hartmann, 1844; Subgenus: *Ambigua* Westerlund, 1903; Species: *Marmorana (Ambigua) signata* (Férussac, 1821); Subspecies: *Marmorana (Ambigua) signata recondita* (Westerlund, 1876).

Remarks: Paulucci examined the species in two subsequent works (Paulucci 1880a, 1881b). In the first one (Paulucci, 1880a, p. 196-197), she provided the description in Italian "... comprende le due forme che il D.^r Tiberi separava con i nomi di H. Carsoliana, (non Férussac) e di H. Persianii, Tiberi. A parer mio queste due divisioni sono assolutamente impossibili; ne sia la miglior prova il fatto, che lo stesso D.^r Tiberi ha qualificato e denominato a vicenda

quest'ultima forma come H. Carsoliana, Var. grandis, H. Carsoliana, Var. Persianii, ed in fine H. persianii, sebbene come già indicato non vi trovi altra differenza che quella della dimensione. Questa mia varietà si distingue dalle sunnominate per la sua forma decisamente depressa, per l'ombelico assolutamente aperto, nell'interno del quale alcune volte si scorge il penultimo anfratto e per la mancanza della macchia ombilicare, sebbene il bordo columellare sia leggermente sfumato di scuro." [... includes the two forms that Dr. Tiberi separated with the names of *H. carsoliana*, (not Férussac) and of *H. persianii*, Tiberi. In my opinion these two divisions are absolutely impossible; the best proof of this is the fact that Dr. Tiberi himself has qualified and named each other this last form as *H. carsoliana*, var. *grandis*, *H. carsoliana*, var. *persianii*, and finally *H. persianii*, although as already indicated you will find no other difference than that of the size. This variety of mine is distinguished from the aforementioned by its decidedly depressed shape, by the absolutely open umbilicus, in the interior of which the penultimate whorl can sometimes be seen and by the lack of the umbilical spot, although the columellar border is slightly darkened.]. In the second study (Paulucci, 1881b, p. 111), she reported as the collection locality "... Caramanico ...". Genetically (Fiorentino et al., 2009), and morphologically (Nordsieck, 2011d), the forms from Monte Morrone in Abruzzi coincided with the populations of Piedimonte Matese in Campania, assigned to *M. (A.) signata recondita*. Since *M. (A.) signata recondita* has the priority over the Paulucci taxon, the latter is synonymised, as accepted by Bank & Neubert (2017).

Helix (Helicogena) ligata Var. *Delpretiana* Paulucci, 1878
(Fig. 28)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 8, n° 204; pp. 34-35, note 46.

Original description: "Sous le nom de Var. Campana, Tiberi, le D.^r Kobelt a représenté dans la continuation de Rossmässler, fig. 1043, une variété qui n'a rien de commun avec la véritable Campana, Tiberi Quant à l'autre forme, figurée par le D.^r Kobelt sous le nom d'H. Campana et qui constitue aussi une jolie variété bien tranchée, ... je la dédie au D.^r R. del Prete ...".

Type locality: described from "... Abruzzes ...". Detailed localities from the type material.

Type material: syntypes, 12 shells. MZUF: "Abruzzo", GC/1944 (8 shells); "Gessopalena Presso M.^{te} Majella Abr. Citeriore", GC/1895 (4 shells).

Current status: Family: *Helicidae* Rafinesque, 1815; Genus: *Helix* Linnaeus, 1758; Subgenus: *Helix* Linnaeus, 1758; Species: *Helix (Helix) pomatella* Kobelt, 1876.

Remarks: although Paulucci did not corrected the first identification on the original tag (perhaps only due to

an oversight), it was unequivocally inferred that the only sample in the collection regarded *Helix delpretiana*. In fact, in the long manuscript Paulucci reported: "*Helix ligata* Müller var. *minor* Tiberi var. *campana* Kobelt (non Tiberi) Cont. Rossmas. Icon. pag. 23, Tav. 100, fig. 1043 Ferussac Hist., Tav. 21 B.F. 4.5. Ottima – Abruzzo (Rigacci) 8 Es. ricevuti dal sig. Rigacci col nome di H. Campana Tiberi. Siccome però questo nome non mi persuadeva paragonando i miei esemplari colla fig. del Bullett. 1869, la portai nell'estate del 1876 a Schrvankeun dal Dr. Kobelt il quale mi ripeté essere questa la H. campana Tiberi e mi indicò la sua figura in Rossmas. per rappresentarla. Di poi ho avuto in mano l'H. campana Tiberi e quantunque opini che quella pure sia una estrema varietà dell'H. ligata, dichiaro essere da questa sensibilmente distinta. Ringrazio il Dr. Tiberi ecc ecc." [*Helix ligata* Müller var. *minor* Tiberi var. *campana* Kobelt (not Tiberi) Cont. Rossmas. Icon. page 23, Plate 100, fig. 1043 Ferussac Hist., Plate 21 B.F. 4.5. Excellent – Abruzzo (Rigacci) 8 specimens received by Mr. Rigacci with the name of *H. campana* Tiberi. However, since this name did not persuade me by comparing my speci-

Helix (Iberus) strigata Var. *polita* Paulucci, 1878

(Fig. 25)

Original publication: Paulucci, 1878a: Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles: p. 8, n° 193; p. 33, note 42.

Original description: "Cette jolie variété se distingue par son test relativement quasi lisse, ainsi que par la rangée de petites taches détachées autour de la suture, caractère qui manque complètement dans la totalité des individus typiques".

Type locality: described from "... Foligno (Ombrie) ...". Other localities from type material.

Type material: syntypes, 11 shells. MZUF: "Foligno", GC/13472 (9 shells); "Sui muri p.º S.^{ta} Scolastica (Subbiaco) provincia di Roma", GC/13471 (2 shells).

Current status: Family: Helicidae Rafineque, 1815; Genus: *Marmorana* Hartmann, 1844; Subgenus: *Ambigua* Westerlund, 1903; Species: *Marmorana (Ambigua) signata* (Férussac, 1821); Subspecies: *Marmorana (Ambigua) signata umbrica* (Mabille, 1867).

Remarks: Alzona (1971, p. 206) considered the var. *polita* Paulucci, 1878, as "subspecies" of *Opica strigata* Férussac, 1822. In the checklist of the Italian fauna, Manganelli et al. (1995, p. 32, notes p. 56), also based on the data published in Oliverio et al. (1992), grouped the

species from central Italy in the subgenus *Ambigua* Westerlund, 1903, placing in synonym *M. (A.) strigata* Férussac, 1822 (nec *Helix strigata* Müller, 1774) with *M. (A.) signata*, but not mentioning the subspecific taxon by Paulucci. Schileyko (2013, p. 158-159) considered the taxon "*polita*" as a variety of *Marmorana (Ambigua) strigata* always placing *M. strigata* Férussac, 1822, in synonymy with *M. signata*. Nordsieck (2011d) validated *M. (A.) signata umbrica* for the Foligno area, because of the characters of the shell. In the checklist by Bank & Neubert (2017), the Paulucci taxon was reported as a synonym of *Marmorana (Ambigua) signata umbrica* (Mabille, 1867). From a genetic point of view, the populations of *Marmorana (Ambigua)* of the central Apennines were identified by clade 3 in Fiorentino et al. (2009), attributable to *M. (A.) signata*, but the populations from Umbria were grouped in a distinct subclade from those of Lazio, Abruzzo and northern Campania. *M. (A.) signata umbrica* was therefore assigned to the former, while *M. (A.) signata tiburtina*, a subspecies validated by Nordsieck (2011d) based on the characters of the shell, to the latter. Therefore the material in the Paulucci collection from Subbiaco (GC/13471) does not belong to *M. (A.) signata umbrica* but to *M. (A.) signata tiburtina*.

Helix (Iberus) carsoliana Var. *contaminata* Paulucci, 1878

(Fig. 26)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles: p. 8, n° 196; p. 34, note 44.

Original description: "Une deuxième variété se rapportant davantage au type, par la forme générale, et s'approchant de la Var. *recondita*, par la tache columellaire, a été nommée par moi: Var. *contaminata*. Quelques-uns de ces exemplaires étaient mêlés à ceux de la forme typique, sous le nom d'H. *Marrucina*, et m'ont aussi été donnés par le Dr Tiberi; cette variété a souvent l'ombilic en partie découvert, sa coloration est semblable à celle du type, mais avec des taches ou des points plus foncés; elle est pourvue, seulement en dessous, d'une bande marron plus ou moins interrompue".

Type locality: described from "Sud E., Sud O." [south eastern and south western Italy]; "... Monte Maiella ...". Other localities from type material.

Type material: syntypes, 21 shells. MZUF: "Presso il M^{te} Majella Abruzzo" GC/2908 (1 shell); "Montagne del Matese", GC/2909 (3 shells), GC/2912 (1 shell); "Monte Morrone Abruzzo", GC/2913 (8 shells); "Monte Morrone in Abruzzo", GC/2914 (2 shells); "Monti di Sora Abruzzo", GC/2915 (1 shell); "Monti di Sora" GC/2916 (5 shells).

Current status: Family: Helicidae Rafinesque, 1815; Genus: *Marmorana* Hartmann, 1844; Subgenus: *Ambigua* Westerlund, 1903; Species: *Marmorana (Ambigua) signata* (Férussac, 1821); Subspecies: *Marmorana (Ambigua) signata recondita* (Westerlund, 1876).

Remarks: Paulucci examined the species in two subsequent works (Paulucci 1880a, 1881b). In the first (1880a, p. 196) she provided the description in Italian "... si distingue dalla Var. *recondita* Westerlund, per forma meno globosa e per ombelico più aperto; dal tipo, pei due summenzionati caratteri e più per una macchia scura all'inserzione del bordo columellare. Per conseguenza questa forma è intermedia e serve a collegare il tipo e la Var. *recondita*, colla Var. *Uzielliana*" [... It is distinguished from the var. *recondita* Westerlund, for its less globular shape and for its more open umbilicus; from the type, for the two aforementioned characters and more for a dark spot at the insertion of the columellar border. Consequently this form is intermediate and serves to connect the type and the var. *recondita*, with the var. *uzielliana*]. In the second (1881b, p. 110) she reported as the collection locality: "Abita la cima del Morrone (1878); Campo Oraca m. 1137 nel Matese (1879)". Bank & Neubert (2017, p. 161) considered valid both subspecies *Marmorana (Ambigua) signata contaminata* (Rossmässler, 1835) and *Marmorana (Ambigua) signata recondita*, but genetically (Fiorentino et al., 2009) and morphologically (Nordsieck, 2011d), the forms of *M. Morrone* in Abruzzi, assigned to the first taxon, coincided with the populations of Piedimonte Matese in Campania, attributable to the second taxon; therefore *M. (A.) signata contaminata* should be considered synonym of *M. (A.) signata recondita*.

populations attributable to *A. a. doriae*, due to their geographical isolation, are differentiated and should be

considered a valid subspecies, confirming that *A. a. picea* is just a simple phenotype of *A. a. arbustorum*.

***Helix (Iberus) muralis* Var. *alutacea* Paulucci, 1878
(Fig. 24)**

Original publication: Paulucci, 1878a: Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles: p. 7, n° 184; p. 33, note 39.

Original description: "Cette charmante variété, ... se distingue surtout par un test remarquablement lisse et comme savonneux au toucher. Elle a la plus grande analogie de forme et de coloration avec l'H. Melitensis".

Type locality: described from "... Sicile et la Calabre ...". Detailed localities from the type material.

Type material: syntypes, 58 shells. MZUF: "Rocce del Monte Consolino Calabria", GC/60606 (10 shells); "Monte Consolino Calabria sulle Rocce", GC/60607 (4 shells); "M^e Consolino, sulle roccie Calabria", GC/60608 (8 shells); "Monte Consolino, sulle Rocce Calabria", GC/60609 (6 shells); "Rocce calcari di Palizzi Calabria", GC/11904 (10 shells), GC/11905 (6 shells); "Monte Stella, sulle Rovine Calabria", GC/11906 (7 shells); "Sferra Cavallo", 11902 (1 shell); "Sferra Cavallo presso Palermo", GC/60964 (3 shells); "Fiume Oreto presso Palermo", GC/60963 (6 shells); "Marineo", GC/60966 (2 shells); "Marineo dintorni di Palermo", GC/60965 (8 shells); "Siracusa", GC/11901 (1 shell); "Aci - Castello Sicilia", GC/11903 (5 shells).

Current status: Family: Helicidae Rafineque, 1815; Genus: *Murella* Pfeiffer, 1877; Species: *Murella muralis* (Müller, 1774); Subspecies: taxon inquirendum.

Remarks: the author treated the species again in the Fauna Malacologica della Calabria (Paulucci, 1880b), at pp. 116-117, and illustrated it in the pl. VII, figs. 2-2a-b, 3-3a-b, 4: "Differit a typo testa laevigata, alutacea. Abita sulle rocce calcaree di Palizzi, del Monte Consolino e del Monte Stella ove è comune!*. Il tipo della specie quale è descritto da Müller, quale è figurato da Gualtieri, che è citato dallo stesso Müller, non vive in Calabria. ... Ho già detto che questa varietà è intermedia fra l'H. Surrentina, e l'H. globularis; però anche per il carattere del guscio perfettamente liscio, è assai più somigliante alla seconda che alla prima. Infatti in alcuni casi è molto difficile di stabilire una linea di divisione fra l'H. globularis, e l'H. muralis, var. alutacea, nella quale si trovano forme più depresse ed altre più globulose. Ma ciò che sin qui almeno, mi ha guidato a distinguerle è che quest'ultima ha sempre l'apertura più stretta e più allungata dell'H. globularis, la quale l'ha invece quasi rotonda; inoltre la var. alutacea, anche negli individui unicolori chiarissimi, cioè di un bigio perla unito senza macchie nè punteggiature, ha sempre l'interno dell'apertura scuro come l'H. muralis, tipo, la qual cosa non ho mai riscontrata nei miei numerosi esemplari di H. globularis, ed ha pure la macchia scura all'inserzione del bordo columellare, carattere che manca nell'H. globularis. Queste sono le basi sulle quali ho stabilito questa varietà, riunendola appunto pei summenzionati caratteri alla H. muralis, piuttosto che alla H. globula-

ris. Tal forma mi sembra però destinata a mostrare la necessità di fondere l'una coll'altra specie. ..." [Is different from the type for its shell smooth and with the colour of leather. It lives on the limestone rocks of Palizzi, Monte Consolino and Monte Stella where it is common!*. The type of the species as described by Müller, as figured by Gualtieri, who is mentioned by Müller himself, does not live in Calabria. ...I have already said that this variety is intermediate between *H. surrentina* and *H. globularis*, but also due to the character of the perfectly smooth shell, it is much more similar to the second than to the first. In fact, in some cases it is very difficult to establish a dividing line between *H. globularis* and *H. muralis*, var. *alutacea*, in which there are more depressed forms and others more globular. But what so far at least, led me to distinguish them is that the latter always has a narrower and more elongated opening than *H. globularis*, which instead has an almost round one; moreover, the var. *alutacea*, even in very light single-coloured individuals, that is of a solid pearl gray without stains or spots, always has the inter no dark aperture like *H. muralis*, type, which I have never found in my numerous specimens of *H. globularis*, and it also has a dark spot at the insertion of the columellar border, a character that is missing in *H. globularis*. These are the fundamentals on which I have established this variety, bringing it together for the aforementioned characters to *H. muralis*, rather than to *H. globularis*. However, this form seems to me destined to show the need to merge one with the other species. ...].

Forcart (1965, pp. 144-145) synonymised *Helix muralis* var. *alutacea* with *Helix globularis* var. *tarentina* Kobelt, 1877, treating it as a subspecies: *Marmorana (Murella) muralis tarentina*. The author also established a *locus typicus restrictus* for the var. *alutacea*: "Prov. Reggio di Calabria. Mte Consolino bei Stilo". However, the restricted type locality is not valid because a lectotype was not designated (Article 76.2 of the ICZN, 1999 Code). Furthermore, the validity or synonymy of *Marmorana (Murella) muralis tarentina* needs to be clarified. Genetic investigations on many populations of Apennine and Sicilian "Marmorana" (Fiorentino et al., 2008a, 2008b, 2009, 2012), show how the populations of north-western and south-eastern Sicily must be considered in the *Murella muralis* group (or better as *Murella* sp., clade 1 and 5 in Fiorentino et al., 2008b), but the taxonomy at the genetic level does not agree with the morphological data. *Helix muralis* Var. *alutacea* belongs to the *Murella muralis* group, its taxonomic status however needs to be verified as, being a taxon described on specimens from different geographical areas, it is likely it involves several distinct taxa. Fiorentino et al. (2009) elevated *Murella* to the genus level.

Helix (Campylaea) macrostoma Var. *Ereta* Paulucci, 1878
(Fig. 22)

Original publication: Paulucci 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 5, n° 111; pp. 29-30, note 25.

Original description: "Parmi mes nombreux exemplaires d'*Helix macrostoma*, il se trouve une forme très intéressante, que j'ai recueillie moi-même au Monte Pellegrino, près Palermo, à ouverture très-dilatée, très-élargie et que M. Benoit a représentée dans sa pl. XI, fig. 7, sans lui donner de nom spécial. Il l'indique seulement comme provenant du Monte Pellegrino. Elle est cependant bien distincte, parce que justement à cause de son dernier tour très-élargi près de l'ouverture toute la coquille prend un aspect ovale au lieu d'être arrondi. Je l'ai appelée Var. *Ereta*, d'après le nom que portait anciennement la montagne".

Type locality: described from "Monte Pellegrino". Other localities from type material.

Type material: syntypes, 10 shells. MZUF: "Monte Pellegrino", GC/11793 (1 shell); "Dintorni di Palermo", GC/11792 (1 shell), GC/11796 (1 shell); "Monte Pellegrino presso Palermo", GC/11791 (4 shells); "Monte Pellegrino ?", GC/11794 (2 shells); "Boschi di Calatafimini ?", GC/11797 (1 shell).

Current status: Family: Helicidae Rafinesque, 1815; Genus: *Campylaea* Beck, 1837; Subgenus: *Campylaea* Beck, 1837; Species: *Campylaea (Campylaea)* cf. *macrostoma* (Rossmässler, 1837).

Remarks: Alzona (1971) reported the Paulucci taxon as an infrasubspecific taxon of *Chilostoma planospira macrostoma*. Recently, some authors (Lo Brano & Sparacio, 2006; Colomba et al., 2008; Liberto et al., 2010; Reitano et al., 2013) did not mentioned the var. *ereta*, but demonstrated, on a genetic basis, how *Chilostoma (Campylaea) macrostoma* was to be considered as a valid species, endemic to Sicily and limited to the area around Palermo.

Schileyko (2013, p. 155) considered *ereta* Paulucci, 1878, as a synonym of *Helix macrostoma* Rossmässler, 1837. Such synonymy seemed probable, however the specimens attributable to "var. *ereta*" differed from the typical forms of *C. macrostoma* of the Monte Cuccio area, for the more depressed spire and the wider aperture. This shape seemed limited to the area of Monte Pellegrino and Monte Gallo, NE of Palermo. Groenenberg et al. (2016), in addition to placing *Campylaea* Beck, 1837 at the genus level, established, on a genetic basis, the subgenus *Oricampylaea* Groenenberg, Subai & Gittenberger, 2016, for *Campylaea illyrica* (Stabile, 1864), and doubtfully assigned to this subgenus also *Campylaea macrostoma*; this sub-general assignment was accepted by Bank & Neubert (2017). Anatomical analysis on *C. macrostoma* of the Monte Cuccio area and on other Sicilian *Campylaea*, highlighted characters corresponding to those of the typical subgenus (in particular the absence of the accessory body alongside the penis), for which the populations of Sicilian *Campylaea* should be placed in the typical subgenus (unpublished personal data).

One of the samples of the typical series (GC/11797), not collected from the area of Monte Pellegrino - Monte Cuccio but probably from Calatafimi and accompanied by the inscription "1 Esempl. Ricevuto dal Sig. Benoit 1877 con nome di *H. setipila* Ziegler, mescolato ad un individuo di var. *pilosa brunnea* con indicazione di questa località. Ma sarà esatta per ambedue gli esemplari?", [One specimen. Received by Mr. Benoit 1877 with the name of *H. setipila* Ziegler, mixed with an individual of var. *pilosa brunnea* with indication of this locality. But will it be exact for both specimens?] was morphologically different. In light of the results presented by Colomba et al. (2008), it could belong to *Campylaea* cf. *benedicta* (Kobelt, 1872).

Helix (Arionta [sic]) arbustorum Var. *Doriae* Paulucci, 1878
(Fig. 23)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 5, n° 130; p. 31, note 28.

Original description: "Cette variété est complètement dépourvue des marbrures qui distinguent cette espèce; elle est d'un vert-olive foncé, unicolore, ou ornée d'une bande peu apparente sur le milieu du dernier tour"

Type locality: described from "Mont Barone, près Biella (Piémont)".

Type material: syntypes, 2 shells. MZUF: "Mon Barone sopra Biella", GC/11974 (2 shells).

Current status: Family: Helicidae Rafinesque, 1815; Genus: *Arianta* Turton, 1831; Species: *Arianta arbustorum* (Linnaeus, 1758); Subspecies: *Arianta arbustorum doriae* (Paulucci, 1878).

Remarks: Alzona (1971) considered *Arianta arbustorum*

doriae as synonym of *Arianta arbustorum picea* (Rossmässler, 1837), taxon at present considered as a valid one and endemic of Austria, where it usually lives on crystalline mountain ranges in the eastern Alps of this country (Haase et al., 2003; Bank & Neubert, 2017). However, for Haase et al. (2003) and Hausdorf & Walther (2021) *A. a. picea* is not genetically different from the other populations of *A. a. arbustorum*. The systematics of this genus is rather complex, many nominal taxa were described, now considered as species, subspecies or ecophenotypes (Gittenberger, 1991, 2004; Haase et al., 2003; Schileyko, 2013; Groenenberg et al., 2016). The species *A. a. picea* is characterized, respect to the previously mentioned species, by a darker colour and more fragile shell with relatively rounded whorls (Haase et al., 2003; Hausdorf & Walther, 2021). Hausdorf & Walther (2021) demonstrated, through genetic analysis, that the Biellese

***Helix (Eulota) Orsinii* Var. *Umbrica* Paulucci, 1878
(Fig. 20)**

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 4, n° 103; p. 28, note 21.

Original description: "...qui diffère [from *Helix Orsinii*], même des variétés pâles, par son test moins rugueux, plus lisse, par une coloration plus jaunâtre, par l'ombilic plus étroit, par le dernier tour plus large, par l'ouverture plus déprimée, plus élargie".

Type locality: described from "... Ombrie" [Umbria]. Detailed localities from the type material.

Type material: syntypes, 39 shells. MZUF: "*Fossato Umbria*", GC/13681 (9 shells), GC/13687 (4 shells), "*Fossato di Vico*" GC/13684 (1 shell); "*Foligno Umbria*", GC/13682 (10 shells), GC/13686 (4 shells); "*Montagna presso Foligno*", GC/13683 (10 shells); "*Visso Umbria*", GC/13685 (1 shell).

Current status: Family: Hygromiidae Tryon, 1866; Genus: *Monacha* Fitzinger, 1833; Subgenus: *Monacha* Fitzinger 1833; Species: *taxon inquirendum*.

Remarks: while *M. orsini* (Porro, 1841) is considered a valid species (Welter-Schultes, 2012; Bank & Neubert, 2017; Neubert et al., 2019), the "variety" *M. o. umbrica* is not mentioned by any other study since its establishment. The genus *Monacha* needs an updated revision for the numerous taxa described in the past from the Italian Apennines (Pieńkowska et al., 2018, 2019). As it is therefore not possible to validate the taxon at a specific level, nor to establish its possible synonymy, it is considered, pending future studies, as *taxon inquirendum*. A sample of the typical series (GC/13684) is very different from the others, in the shape of the higher coil, the narrow umbilicus and the brown colour with white band, but being an immature specimen, it is not possible to identify it. As it is unlikely that Paulucci could have confused two such different forms, it is assumed that this sample is not the original one.

***Helix (Campylaea) planospira* Var. *Stabilei* Paulucci, 1878
(Fig. 21)**

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 4, n° 107; pp. 28-29, note 22.

Original description: "Je n'ai guère à m'occuper des nombreuses variétés d'*Helix planospira* qui se rencontrent dans le Nord de l'Italie, parce que Stabile et Kobelt ensuite en ont fait une étude consciencieuse et intéressante. Je me suis décidée à changer le nom de var. *Italica*, donné par Stabile à la forme qui vit dans les provinces de Verona, Vicenza, etc., contre celui de var. *Stabilei*, parce qu'il me paraît étrange de désigner la variété d'une espèce si éminemment italienne, sous le nom de var. *Italica*. Le Dr. Kobelt, par les mêmes raisons probablement, la nomme var. *umbilicaris*, Brumati. Il me semble que ce choix n'est pas heureux, vu que je ne le crois pas exact. Brumati, par *H. umbilicaris*, n'entendait pas désigner une variété locale, mais bien tous les *H. planospira*, qu'il connaissait. Ainsi, pour moi, j'envisage l'*H. umbilicaris* comme synonyme absolu de l'*H. planospira*, Lamk., du moins pour ce qui se rapporte aux formes de l'Italie septentrionale".

Type locality: described from "... provinces de Verona, Vicenza, etc., ...". Detailed localities from the type material.

Type material: syntypes, 15 shells. MZUF: "*Val Sugana - Trentino*", GC/56895 (2 shells); "*Val Terragnolo. Pr. Rovereto - Trentino*", GC/11817 (8 shells); "*Monti Berici Prov. Vicenza*", GC/11821 (3 shells); "*Val Sugana - Trentino*", GC/11825 (2 shells).

Current status: Family: Helicidae Rafinesque, 1815; Genus: *Campylaea* Beck, 1837; Subgenus: *Oricampylaea* Groenenberg, Subai & Gittenberger, 2016; Species: *Campylaea (Oricampylaea) illyrica* (Stabile, 1864); Subspecies: *Campylaea (Oricampylaea) illyrica illyrica* (Stabile, 1864).

Remarks: Paulucci (1880b, p. 76) tackled the nomenclatural problem again: "... In secondo luogo che Var. *italica*, Stabile, loc. cit. pag. 62, la quale è benissimo rappresentata in Ferrusac (Hist. tav. 68, fig. 10, b. c.) cioè destra e sinistra (quella nel mezzo esclusa) e la fig. 1057 di Kobelt (figura non abbastanza esatta perché non pone assai in rilievo la forma allungata e direi ammoniforme dell'ultimo anfratto vicino all'apertura, che è propria delle varietà dell'alta Italia e della Val Sugana principalmente) dovrà per ragioni di logica cambiar nome, ed io propongo quello di Var. *Stabilei*, in nome del nostro scienziato italiano che si è occupato sì particolarmente dello studio di questa specie. Sarebbe invero troppo ridicolo chiamare una varietà di questa specie così eminentemente italiana col distintivo di Var. *Italica*." [... Secondly, that var. *italica*, Stabile, loc. cit. page 62, which is very well represented in Ferrusac (Hist. Tav. 68, fig. 10, b. c.) ie right and left (the one in the middle excluded) and fig. 1057 of Kobelt (figure not quite exact because it does not emphasize the elongated shape and I would say ammoniform shape of the last whorl near the opening, which is typical of the varieties of upper Italy and Val Sugana mainly) will have to change name, and I propose that of var. *stabilei*, in the name of our Italian scientist who has been particularly involved in the study of this species. Indeed, it would be too ridiculous to call a variety of this eminently Italian species with the distinctive var. *italica*]. Groenenberg et al. (2016) established the subgenus *Oricampylaea* in which included *Campylaea illyrica* (Stabile, 1864). Bank & Neubert (2017) reported the taxon "*stabilei*" Paulucci, being mistaken regarding the year of description (1880, instead of 1878), as a synonym of *Campylaea (Oricampylaea) illyrica illyrica* (Stabile, 1864).

second one, a new description in Italian was also associated with the figures of the shell (Paulucci, 1880b: pp. 52-53, pl. 1: figs. 4, 4a, 4b): “*Conchiglia con ombilico piccolo, di forma globosa quantunque depressa, liscia, soprattutto di sotto, luccicante, semitrasparente, di color corneo rossiccio superiormente, verdastro opaco inferiormente; minutamente striata intorno agli anfratti; questi sono sei, marginati di bigio ed assai convessi; l’ultimo grande, non discendente, rigonfio principalmente al di sotto e alquanto incavato in prossimità dell’ombilico; l’apertura è larga, ovato-rotondata, internamente margaritacea, e in diversi esemplari presso il margine munita di una specie di striscia o callosità latitesciente; il peristoma è semplice, sottile; il margine columellare leggermente allargato sull’ombelico, che però non ricopre. Questa bella specie è stata raccolta a Mongiana alle falde del Monte Pecoraro (metri 920 circa), in una località assai umida fra mezzo alle pietre e al tritume di foglie*” [Shell with small umbilicus, globular in shape although depressed, smooth, especially below, shimmering, semitransparent, brown-reddish above, opaque greenish below; minutely streaked around the whorls; these [the whorls] are six, bordered with gray and very convex; the last

large, non-descending, swollen mainly below and somewhat hollowed near the umbilicus; the opening is large, ovate-rounded, internally margaritaceous, and in several specimens near the margin equipped with a kind of milky stripe or callosity; the peristome is simple, thin; the columellar margin slightly enlarged on the umbilicus, which, however, does not cover it [the umbilicus]. This beautiful species was collected in Mongiana at the foot of Monte Pecoraro (about 920 meters), in a very humid place among the stones and the crushed leaves]. Riedel (1972) established the lectotype by photographing it (p. 206, pl. 2, figs. 18-20) and published the dental formula of the radula and also the drawing (p. 198, fig. 8). Manganelli et al. (1990), reaffirmed the validity of the species by providing its anatomy (pp. 186, 188, figs. 3-4) and the illustration of the radula (p. 189, fig. 5), and attributed the species to Paulucci (1880b, not 1879), considering *nomen nudum* the publication of the species in Paulucci (1878a). The species was also considered valid by Cianfanelli & Manganelli (2002), Welter-Schultes (2012) and by Bank & Neubert (2017), which correctly reported the year of description.

Hyalina (Mesonphix) fragrans Paulucci, 1878 (Fig. 19)

Original publication: Paulucci, 1878a. Matériaux pour servir à l’étude de la faune malacologique terrestre et fluviale de l’Italie et de ses îles: p. 2, n° 55; p. 27, note 15.

Original description: “*Testa anguste umbilicata, depressa, planiuscula, subpellucida, fragilis loevigata, glabra, ad suturam superne striatula, virenti-cornea, subtus albescens, opaca; anfractus 6, primi lente accrescentes, ultimus dilatatus, non descendens, circa umbilicum angustum leviter excavatus; spira plano-depressa; apertura perobliqua, ampla, ovata, intus margaritacea; peristoma simplex, tenue, acutum, margine inferiore profundo, extense arcuato. – Diam. maj. 20, minor 17, alt 9, mill. Differt ab H. Carotii, spira depressa, umbilico minore, anfractu ultimo celeriter accrescente, diverso colore, apertura ovata, margine columellari non expansiusculo. Animal musco olens*”.

Type locality: “*Melia (Calabria)*” by original description and “*Strada da Scilla a Melia Calabria*”, locality obtained by the creation of the lectotype.

Type material: lectotype, 1 shell. MZUF: “*Str[a]da da Scilla a Melia Calabria*”, GC/821 (1 shell). Paralectotypes, 2 shells. MZUF: “*Presso la grotta di Tremisi Calabria*”, GC/822 (1 shell); “*Melia*”, GC/59534 (1 shell).

Current status: Family: Oxychilidae Hesse, 1927; Genus: *Schistophallus* Wagner, 1914; Subgenus: *Schistophallus* Wagner, 1914; Species: *Schistophallus (Schistophallus) carotii* (Paulucci, 1878).

Remarks: in successive studies Paulucci (1878c, 1880b) described in detail this taxon; in particular, in the second paper, a new description in Italian was also associated with the figures of the shell (Paulucci, 1880b: pp. 53-54, pl. 1, figs. 5, 5a, 5b): “*Conchiglia umbilicata, fra-*

gilissima, liscia, lustra, trasparente, striata intorno alla sutura; color corneo-verdastro di sopra, bianchiccio-opaco di sotto; anfratti sei; i primi aumentano gradatamente, l’ultimo invece largo assai, non discendente e leggermente incavato intorno all’ombilico che è piuttosto stretto; spira depressa; apertura grande, ovale, perlacea nell’interno; peristoma acuto e sottilissimo. Differisce dalla H. Carotii, per la sua spira depressa; per l’ombelico più piccolo; per l’ultimo anfratto relativamente molto allargato; per la diversità di colore; per l’apertura ovale; infine per il margine columellare non ripiegato nè allargato sull’ombelico” [Umbilicate shell, very fragile, smooth, shiny, transparent, streaked around the suture; horny-greenish colour above, whitish-opaque below; six whorls; the former gradually increase, the latter rather wide, not descending and slightly hollowed around the umbilicus which is rather narrow; depressed shell; large, oval opening, pearly on the inside; acute and very thin peristoma. It differs from *H. carotii* by its depressed coil; for the smallest umbilicus; for the last relatively large whorl; for the diversity of colour; for the oval opening; finally for the columellar margin not folded or widened on the umbilicus]. Riedel (1972) established the lectotype by photographing it (p. 206, pl. 2, figs. 21-23) and published the dental formula of the radula and the drawing (p. 199, fig. 9). In Manganelli et al. (1990), the species was attributed to Paulucci (1880b, not 1879), considering *O. fragrans nomen nudum* in Paulucci (1878a). The species was placed in synonymy with *Oxychilus (Schistophallus) carotii* by Manganelli et al. (1990) and by Bank & Neubert (2017); in the latter work the authors correctly reported the year of description.

***Hyalina (Vitrea) Etrusca* Paulucci, 1878**
(Fig. 16)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 2, n° 47; p. 25, note 10.

Original description: “*Testa minutissima, depressa, subinfundibuliformi-umbilicata, vitrea, nitidissima, sub valida lente lineis arcuatis incrementi minutissime striatula; anfr. 4-4½ convexiusculi, regulariter crescentes; sutura impressa, marginata; apertura late lunaris; peristoma rectum, acutum, simplex, margine columellari subreflexo.* – Diam. maj. 2 min. 1½, alt. 1 mill.”.

Type locality: described from “*Alluv. de l’Era*”; “... *alluvius fluminis Arno, prope Firenze et Pisa.*”. Other localities from type material.

Type material: syntypes, 184 shells. MZUF: “*Detriti dell’Era presso Peccioli*”, GC/812 (111 shells); “*Lavaroni d’Arno*”, GC/811 (15 shells); “*Gombo sulla spiaggia*”, GC/813 (10 shells); “*Bocca d’Arno sulla spiaggia*”, GC/814 (11 shells); “*Detriti del Gombo*”, GC/13204 (37 shells).

Current status: Family: Pristilomatidae Cockerell, 1891; Genus: *Vitrea* Fitzinger, 1833; Species: *Vitrea etrusca* (Paulucci, 1878).

Remarks: the description was also reported in Paulucci (1878c, p. 355), and in a subsequent work, Paulucci (1881b) reported the illustration of three images of the shell (pl. I bis, figs. 4, 4a, 4b), explaining in the caption page (p. 177, note (1) at the bottom of the page), that this illustration was “*a solo scopo di confronto con la H. Cavannae*” [for comparison purposes only with *H. Cavannae*]. In a revision on the genus *Vitrea* from the Balkans, Pintér (1972) supposed *Vitrea etrusca* as a senior synonym of *Vitrea pygmaea* (Boettger, 1880). *Vitrea etrusca* is considered a valid species in the most recent reviews and checklist papers and treated as a valid species with respect to *V. pygmaea* (Riedel, 1980; Welter-Schultes, 2012; Bank & Neubert, 2017).

***Hyalina (Mesomphix) Alleryi* Paulucci, 1878**
(Fig. 17)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 2, n° 51; pp. 25-26, note 11.

Original description: “*Testa globoso-depressa, umbilicata, solidula, arcuatim et confertim striatula, lineis spiralibus decussata, supra lutescente-cornea, subtus loevigata vel radiatim striatula, virescens; anfr. 6 convexiusculi, forte accrescentes, ultimo lato, antice non descendente; sutura albo marginata, crispata; apertura obliqua, lunata, ovalis, intus plus minusve margaritacea; peristoma simplex, acutum; margine columellari breviter reflexo.* – Diam. maj. 16, min. 14, alt. 9 mill. Apertura 6 ½ mill. alta, 8 lata”.

Type locality: described from “*Monte S. Gallo (Siciliae)*”.

Type material: syntypes, 75 shells. MZUF: “*Monte Gallo Sicilia*”, GC/756 (10 shells), GC/757 (5 shells), GC/758

(1 shell), GC/759 (5 shells), GC/760 (2 shells), GC/761 (1 shell), GC/13656 (60 shells).

Current status: Family: Oxychilidae Hesse, 1927; Genus: *Oxychilus* Fitzinger, 1833; Subgenus: *Oxychilus* Fitzinger, 1833; Species: *Oxychilus (Oxychilus) fuscus* (Ross-mässler, 1838).

Remarks: the diagnosis in Latin was also reported in Paulucci (1878c, p. 356). Manganelli et al. (1995) placed *O. alleryi* in synonymy with *O. fuscus*, the oldest species by date of description of the Sicilian *Oxychilus* with the micro-sculpture on the teleoconca, pending a thorough overall revision of the Sicilian *Oxychilus*. In Bank & Neubert (2017) the subgenus was dubiously reported, but the anatomical data confirmed the subgeneric assignment (unpublished personal data).

***Hyalina (Mesomphix) Carotii* Paulucci, 1878**
(Fig. 18)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles: p. 2, n° 54; pp. 26-27, note 14.

Original description: “*Testa peranguste umbilicata, globoso-depressa, glabra, loevigata, lucida, corneo-rufescens, superne ad suturam striatula, spira vix elevata; anfractus 6 convexiusculi, forte accrescentes, ad suturam griseo-marginati, ultimus validus, subtus inflatus, non descendens, circa umbilicum excavatus; apertura ampla, ovalis, rotundato-lunaris, intus margaritacea; peristoma simplex, tenue, margine columellari vix expansiusculo, ad umbilicum subreflexo.* – Diam. maj 20-24 ½, min. 17-20 ½, alt. 11-15 mill.; apert. 11. mill. alta., 13 lata”.

Type locality: “*Mongiana. Falde del Monte Pecoraro – Calabria*”, locality by original description and reported by the Lectotype.

Type material: lectotype, 1 shell. MZUF: “*Mongiana. Falde del Monte Pecoraro – Calabria*”, GC/823 (1 shell). Paralectotypes, 12 shells. MZUF: “*Mongiana. Falde del Monte Pecoraro – Calabria*”, GC/824 (1 shell), GC/13358 (6 shells); “*Mongiana*”, GC/59535 (5 shells).

Current status: Family: Oxychilidae Hesse, 1927; Genus: *Schistophallus* Wagner, 1914; Subgenus: *Schistophallus* Wagner, 1914; Species: *Schistophallus (Schistophallus) carotii* (Paulucci, 1878).

Remarks: in two successive works, Paulucci (1878c, 1880b) described in detail this taxon; in particular in the

Murex Veranyi Paulucci, 1866
(Fig. 14)

Original publication: Paulucci, 1866. Description d'un *Murex* fossile du terrain tertiaire subapennin de la vallée de l'Elsa (Toscane). *Journal de Conchyliologie*: pp. 64-67; pl. II, fig. 1; pl. III, fig. 1, 1^{er} Janvier 1866.

Original description: “*M. testa elongato-fusiformis, trifariam varicosa, transversim tenuiter costulato-striata, costulis subdistantibus et in ultimo anfractu magis conspicuis; anfractibus octonis, in medio obtuse angulatis, sutura subirregulariter impressa separatis, varicibus 3 lamellosis, compressis, alatis, plicato-foliaceis, sublaciniatis, suboblique ascendentibus, continuis, et tuberculo lato, obtuso, inter varices prominente, ornatis, ultimo anfractu triangulari, spirae longitudinem superante, in canalem clausum, latum, longum desinente; apertura ovata, parviuscula; peristomate continuo, incrassato et breviter subreflexo.*— Long. 87, diam. maj. 38 mill. (coll. Paulucci)”.

Coquille allongée, presque fusiforme, à spire pointue, à sutures distinctes et légèrement irrégulières, marquée de stries ou costulations transverses, assez espacées, peu apparentes dans les premiers tours et plus accusées sur le dernier. Elle se compose de 8 tours étagés, divisés en parties égales par trois varices, entre lesquelles surgit un tubercule large et obtus: les

varices sont continues, comprimées, lamelleuses, plissées, légèrement laciniées, et suivent une ligne un peu oblique du sommet de la spire à l'extrémité de la coquille. La partie médiane des tours est obtusément anguleuse: le dernier tour, plus grand que la spire, est triangulaire. L'ouverture est très-régulièrement ovale, le péristome continu, épaissi et même un peu réfléchi. Le canal est long, large, déprimé et fermé dans toute sa longueur. — La longueur totale de la coquille est de 87 millimètres, son plus grand diamètre de 38.”...

Type locality: described from “... une localité nommée Casaglia, qui est située dans la vallée de l'Elsa, et dont l'accès est difficile: car la couche fossilifère est située au sommet d'un ravin profond, ...”.

Type material: syntypes, 2 shells. IGF: “Pliocene. Dintorni di Siena”, 9044E (1 shell), 6087E (1 shell).

Current status: Family: Muricidae Rafinesque, 1815; Genus: *Purpurellus* Jousseaume, 1880; Species: *Purpurellus cyclopterus* (Millet, 1865).

Remarks: the species was treated by Spadini (2002) and it is presently a synonym of *Purpurellus cyclopterus* (Millet, 1865) in Landau et al. (2016).

Glandina Algira Var. *pyramidata* Paulucci, 1878
(Fig. 15)

Original publication: Paulucci, 1878a. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles: p. 1, n° 14.

Original description: “Kobelt-Rossm., fig. 1313”.

Type locality: described from “Sud O.” [south-western Italy]. Detailed locality from type material.

Type material: syntypes, 3 shells. MZUF: “Rovine di Pesto”, GC/11946 (3 shells).

Current status: Family: Spiraxidae Baker, 1939; Genus: *Poiretia* Fischer, 1883; Species: *Poiretia dilatata* (Philippi, 1836); Subspecies: *Poiretia dilatata dilatata* (Philippi, 1836).

Remarks: Kobelt (1877) described *Glandina algira* var. *microstoma* (p. 57, pl. 134, fig. 1313) where he reported as locality for this variety “Apulien”, but in the Table 134, it was illustrated with other forms without reporting any infraspecific names (figs. 1313-16, *Glandina algira*). Paulucci (1878a) gave, for *G. a. pyramidata*, a distribution in the south-west Italy, referring only to the fig. 1313 by Kobelt. Therefore Paulucci probably based her description only on the table without realizing that in the same work by Kobelt, in the extensive treatment of *Glandina algira* (pp. 55-58) on page 57, the variety *G. a. microstoma* was still existent. This hypothesis is reinforced by the fact that regarding its distribution, Pau-

lucci (1878a) reported south west Italy while Kobelt (1877) defined the typical locality in Apulia, therefore in south east Italy.

Plausibly, Paulucci created this variety on the three specimens collected by herself and by Caroti in April 1877 in the “Rovine di Pesto”, in Calabria, as it can be verified from the sample in the collection (Fig. 15), otherwise in the “Matériaux” she would have marked the taxa with a sign “+” (see p. III “Les espèces indiquées comme habitant le sol italien, mais dont les représentants manquent dans ma collection, sont précédées du signe +”) [The species indicated as inhabiting Italy, but whose representatives are missing in my collection, are preceded by the sign +]. The clarification on the locality was given later (Paulucci 1880b, p. 157: “Raccolta in pochi esemplari da me e da Caroti fra le rovine di Pesto”) [Collected in a few individuals by me and by Caroti among the ruins of Pesto], reiterating however that her specimens corresponded to the figure 1313 by Kobelt (1877).

We therefore agree with Subai (1980) and Bank & Neubert (2017) who believe *Glandina algira* Var. *pyramidata* an available name, because it refers to an illustration, although it shall be considered a synonym of *Glandina algira* Var. *microstoma*, in turn synonymous with *Poiretia dilatata dilatata*.

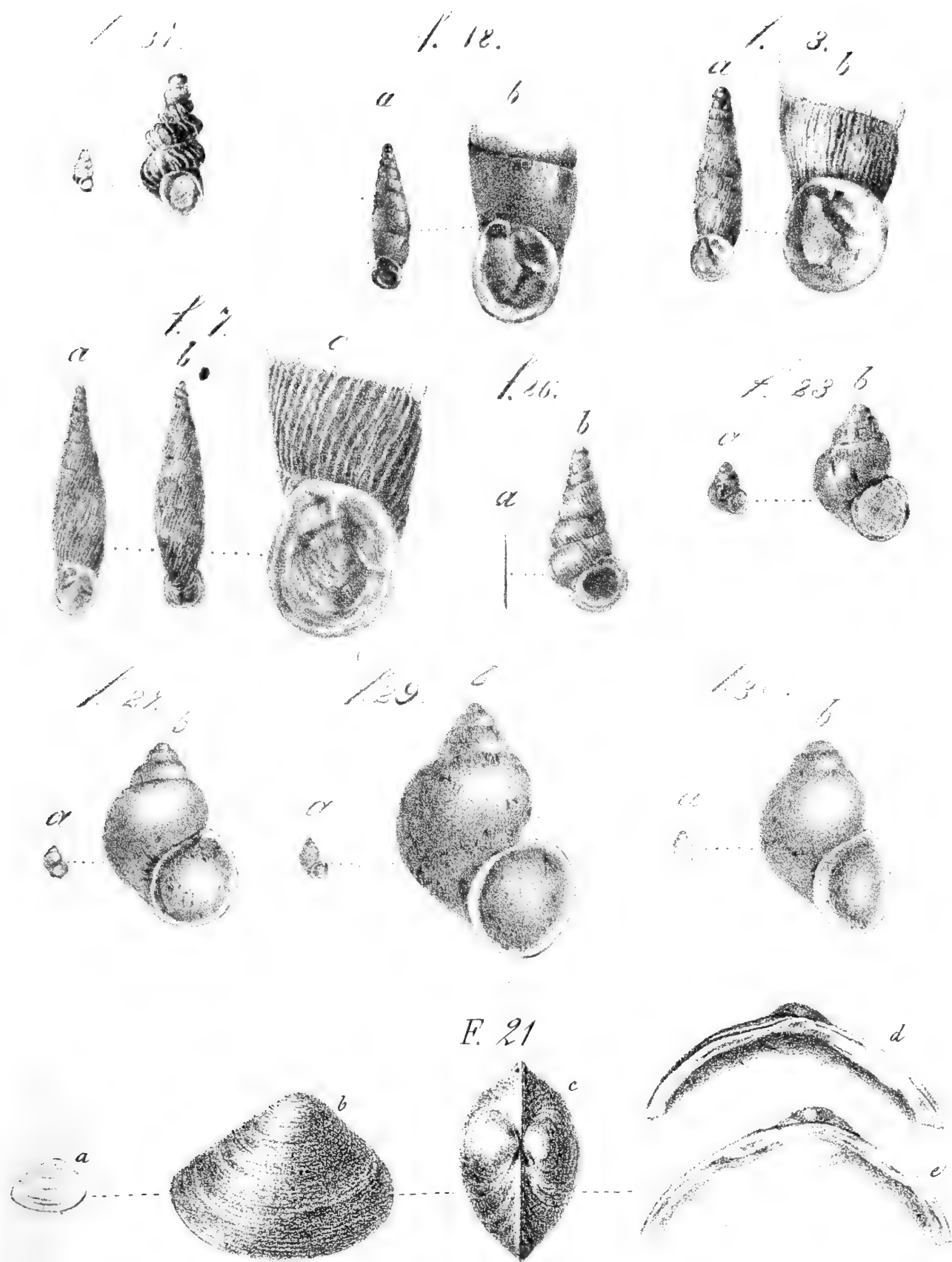


Fig. 13. Taxa drawn in Benoit plates 5-8 (1857-1862), which must be attributed to Paulucci. The order of publication of the *Materiaux* is followed: plate 5, fig. 37, *Pupa scalaris*; plate 6, fig. 18, *Clausilia vulcanica*, fig. 3, *Clausilia grommaniana*, fig. 7, *Clausilia Tiberiana*, fig. 26, *Pomatias Pjraini*; plate 7, fig. 23, *Bythinia segestana*, figs. 27, 29, *Amnicola vestita*, fig. 30, *Amnicola Cocchi*; plate 8, fig. 21, *Pisidium nucleum*.

over Europe, with a complete description or simply by combining them with the figures of Benoit using the specimens that Benoit himself provided. Paulucci, in the eighteen months preceding the publication of the *Matériaux* (Paulucci, 1878a), also received many of Benoit's species. In 1877 she asked Benoit to explain the tables he published, which the author did by sending one of his manuscripts (letter of November, 10th 1877 by Benoit, from Messina, preserved in the State Archive in Florence: "*le restituisco il notamento che mi ha mandato, con la spiegazione delle tavole della mia opera*") [I am sending you back the list you sent me, with the explanation of the tables of my work] (Fig. 11). This autographed manuscript by Benoit, written on a single double-sided sheet, whose facades were divided into two columns, was attached, before the tables, in the volume bound by Paulucci on Benoit's complete work. This copy, owned by Paulucci, is still preserved today in the Science Library of the University of Florence (Fig. 12). Paulucci mentioned this important document several times in her works, in 1878 (Paulucci, 1878a, p. 43 note 91, p. 49 note 118), in 1879 (Paulucci 1879c, p. 17) and in 1880 (Paulucci, 1880b, pp. 46, 132, 137, 140, 201). In these citations, a precise reference was made to Benoit's tables or to the manuscript sent by Benoit, as for

example in Paulucci (1879) "... Devo alla gentilezza del signor Benoit gli esemplari della mia collezione, come devo pure al medesimo una nota manoscritta che indica i nomi delle sue specie e a quali delle figure della sua Illustrazione queste devono riferirsi..." [... I owe to the kindness of Mr. Benoit the specimens of my collection, as well as I owe to the same a handwritten note which indicates the names of his species and to which of the figures in his Illustration these must refer ...]. In 1878, Paulucci was thus able to refer the corresponding tables and figures to the individual names by Benoit. In conclusion, the combination with the figures, illustrated in the tables by Benoit (1857-1875), with the *nomen nuda* (Benoit, 1876), a combination justified by the manuscript sent by Benoit to Paulucci, make available the taxa on the basis of the ICZN (1999) articles 10-12. For this reason, nine names mentioned by Paulucci (1878a) as referred to Benoit, are instead attributed to Paulucci: *Pupa* (Torquilla) *scalaris* Paulucci, 1878; *Clausilia* (Delima) *vulcanica* Paulucci, 1878; *Clausilia* (Siciliaria) *Grohmanniana* Var. *Panormitana* Paulucci, 1878; *Clausilia* (Siciliaria) *Tiberiana* Paulucci, 1878; *Pomatias* *Pirajni* Paulucci, 1878; *Bythinia* *Segestana* Paulucci, 1878; *Amnicola* *vestita* Paulucci, 1878; *Amnicola* *Cocchi* Paulucci, 1878; *Psidium* *nucleum* Paulucci, 1878 (Fig. 13).

<p><i>Tabella 5.</i></p> <p>Fig. 33. <i>Pupa avinacea</i> - Brug.</p> <p>34. " <i>gramma</i> - Drap.</p> <p>35. " <i>scutella</i> - Drap.</p> <p>36. " <i>musculus</i> - Muller</p> <p>37. " <i>stalaris</i> - Benoit</p> <p>38. " <i>torquilla</i> - Benoit</p> <p>39. " <i>torquilla</i> - Brug.</p> <p>40. " <i>umbellata</i> - Drap.</p> <p>41. " <i>torquilla</i> - Brug.</p> <p>42. " <i>torquilla</i> - Brug.</p> <p>43. " <i>torquilla</i> - Brug.</p> <p>44. " <i>torquilla</i> - Muller</p> <p>45. " <i>torquilla</i> - Drap.</p> <p>46. " <i>torquilla</i> - Drap.</p> <p>47. <i>Clausilia picea</i> - Brug.</p>		<p><i>Segue la tavola 6.</i></p> <p>Fig. 48. <i>Pomatias</i> - Brug.</p> <p>49. " <i>Pomatias</i> - Brug.</p> <p>50. " <i>Pomatias</i> - Brug.</p> <p>51. <i>Amnicola</i> - Brug.</p> <p>52. <i>Amnicola</i> - Brug.</p> <p>53. " <i>Amnicola</i> - Brug.</p> <p>54. <i>Bythinia</i> - Brug.</p> <p>55. <i>Bythinia</i> - Brug.</p> <p>56. " <i>Bythinia</i> - Brug.</p> <p>57. 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Fig. 12. Benoit's manuscript sent to Paulucci, where the names to be associated with the species drawn in plates V-VII, which he published without captions, are reported (Benoit, 1857-1862). The manuscript was attached by Paulucci to his own copy of Benoit (1857-1875), now deposited in the Library of the Polo Scientifico di Sesto Fiorentino of the University of Florence.

tinuazione alla Illustrazione sistematica critica iconografica de' testacei estramarini della Sicilia Ulteriore e delle isole circostanti" Benoit published a tome and a paper, by the printer D'Amico from Messina (Benoit, 1882a) and in the Atti della Reale Accademia Peloritana (Benoit, 1882b), where he described many of his species and var-

ieties by combining them with the figures of the printed tables of the previous years. Subsequently, De Gregorio (1896) also published the captions of Benoit's tables, from 1 to 9. However, in many instances, the species names that Benoit previously published as a *nomina nuda* were already used by other malacologists, from all

Messina 10 Novembre 1877

Carissimo Signora Marchesa

Permetta la sua grazia del 5 seguente ricevuto
Ho ricevuto esattamente il buon corrispettivo
lo malabino con la figura di Philip; e Hyalium
obvolutum di Tonona. La Hyalium funata
di Pirella, che vive nei monti di Palermo è
esattamente distinta dall'obvolutum, per avere
l'orifizio più ristretto, e la spira più elevata
non elevata. L'obvolutum però è assai
più alta. Spira delle Madonie, alla
quale si è dato il nome di H. Maoralvi in
schena; nella mia opera però io la
ritengo per l'Alba obvolutum, come
già ho indicato. Le figure dell'opera
sindona non sono esatte, perché sono
dall'opera del Mammola. Questo è
mio parere, e aggiungo che Ma. è il
mio avviso.

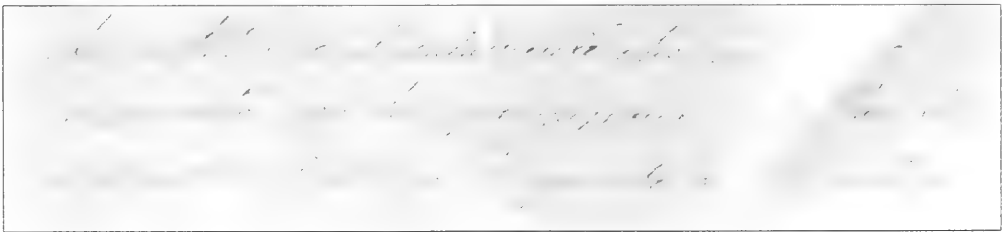


Fig. 11. Excerpt from Benoit's letter, Messina 10 November 1877, in which Benoit informs Paulucci that he has sent her the captions of the species depicted in plates V-VII (Benoit 1857-1862). Letter preserved in the State Archive of Florence.

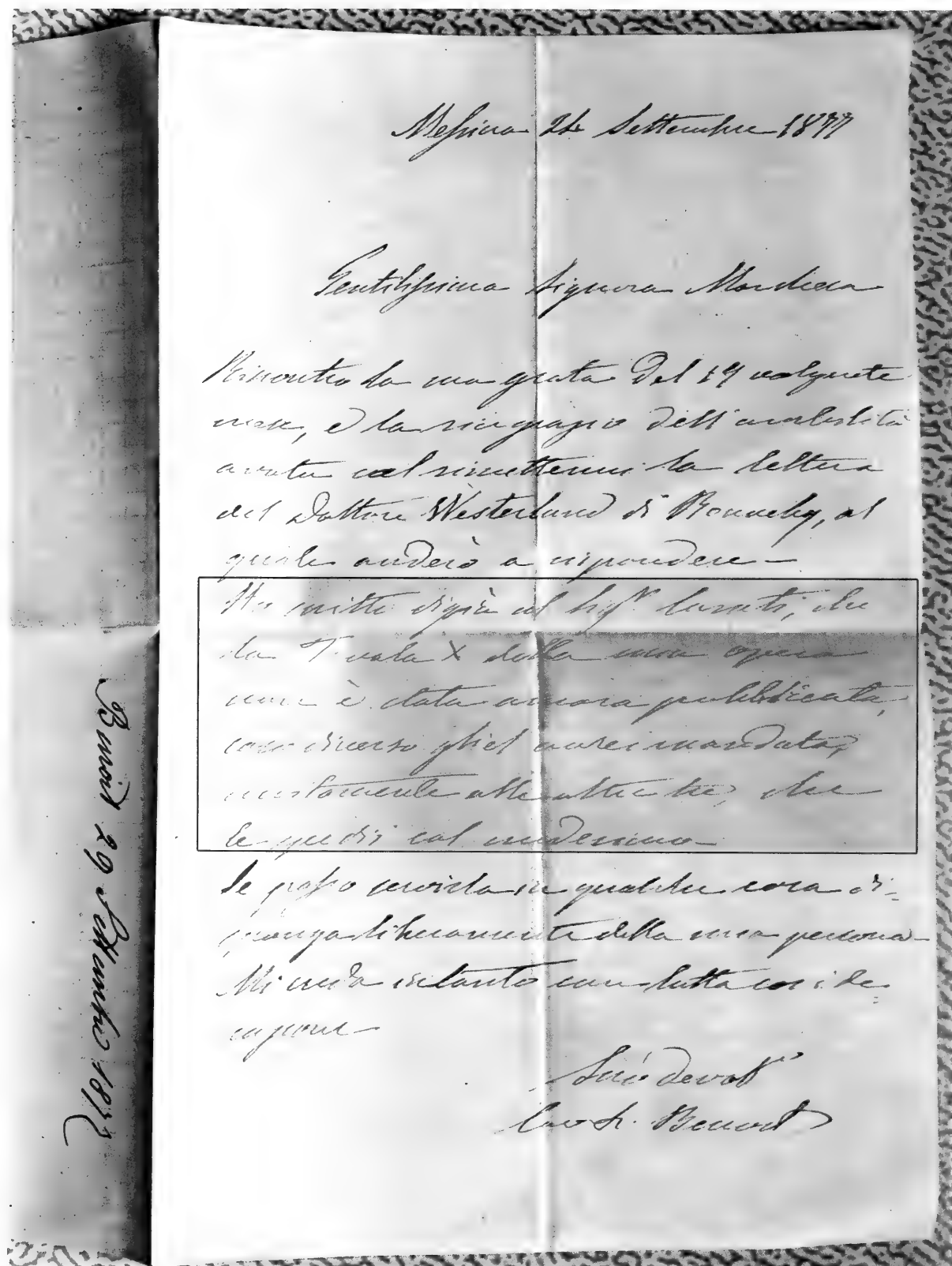


Fig. 10. Excerpt from Benoit's letter, Messina 24 September 1877, in which the author informs Paulucci that table X (Benoit 1857-1862) has not been published. This table will never be published. Letter preserved in the State Archive of Florence.

accompanied by tables I and II and the second in the same year, accompanied by tables III-IV. The third part was published in 1859, with tables V-VI and the last in 1862, with tables VII-VIII. Subsequently, in 1875, he printed, without text, the tables IX, XI, XII; plate X was never published (Fig. 10). With the exception of plates XI and XII, all the plates were printed without captions. In 1876, Benoit published the work "Catalogo delle con-

chiglie terrestri e fluviatili della Sicilia e delle isole circostanti" (Benoit, 1876) where he introduced many new taxa as *nomina nuda*, without description, nor reference to the figures of the tables published in 1857, 1859, 1862, 1875, but with the sole indication of distribution in Sicily. Only in 1882 (Benoit 1882a, 1882b) with the "Nuovo catalogo delle Conchiglie terrestri e fluviatili della Sicilia o Con-

DISTRIBUZIONE GEOGRAFICA



Fig. 8. Map of Italy with the demarcation of the zoological regions "*régions ou provinces zoologiques*", taken by Paulucci (1880c, p. 92) and modified.



Fig. 7. Paulucci used, for the boxes containing Italian specimens, different colours corresponding to the geographical areas into which she had divided Italy in “*le régions ou provinces zoologiques*”. **A.** Verde: Aosta Valley, Piedmont, Lombardy, Trentino Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna. **B.** Yellow: Liguria, Tuscany and Tuscan Archipelago, Umbria, Marche, part of Lazio. **C.** Purple: Abruzzi, part of Lazio, Molise, Campania, Puglia, Basilicata, Calabria. **D.** Blue, corresponding to the islands: Sicily and its surrounding islands, Sardinia, and some other smaller Sardinian islands.

Barbagli & Borri, 2002). Of the numerous taxa described, all but two types are still present in the Paulucci collection in the malacological section of the Museum of Natural History in Florence (MZUF). The missing types are the only two snails (Milacidae) described by Paulucci: *Amalia marginata* Var. *fulva* and *Amalia marginata* Var. *mongianensis*. The whole collection of snails was sent to Lessona for study (Paulucci, 1882b, p. 142); several new taxa were established on this collection (Lessona & Pollonera, 1882). It was returned in 1883 (as stated in 1883 Pollonera’s letter preserved in the State Archive of Florence) but it is currently not present in the museum collection (the whole Paulucci collection now includes dry specimens only) and are presently considered lost. However, her collection of recent molluscs is undoubtedly one of the most important in Italy, especially for the continental molluscs of this country. Besides the typical material of the taxa described by Paulucci in the collection, there are specimens, in some cases types, sent by the major malacologists of the time: Giovanni Battista Adami, Andrea Aradas, Auguste Adolphe Baudon, Luigi Benoit, Ippolito Blanc, Oskar Boettger, Spiridion Brusina, Stefan Clessin, Joseph Charles Hippolyte Crosse, Francesco Edoardo De Betta, Carlo De Stefani, Raimondo Del Prete, Gérard-Paul Deshayes, Emil Deschamps, Henri Drouët, Jacques Sébastien

François Léonce Marie Paul Fagot, Alexandre Guillaume Léopold de Folin, Jean-Baptiste Gassies, Vincenz Gredler, Wilhelm Kobelt, Emil Kuster, Arturo Issel, John Gwyn Jeffreys, Félix Pierre Joussaume, Michele Lessona, Étienne Alexandre Arnould Locard, Tommaso Albery di Maria Monterosato, Pierre Marie Arthur Morelet, Laurent-Joseph Morlet, Vittorio Pecchioli, Dante Pantanelli, Carlo Pollonera, Giovanni Rigacci, Guillaume Camille Alfred de Candie de Saint-Simon, George Brettingham Sowerby, Adolf Stossich, Adolfo Targioni Tozzetti, Cesare Maria Tapparone Canefri, Nicola Tiberi, Anselmo Tommasi, Vittorio Uzielli, Jean Baptiste Verany, Antonio Villa, Giovanni Battista Villa, Carl Agardh Westerlund, Bernard Barham Woodward, and many others, a fact that was also noted in the obituary of the Marchesa Paulucci by Arrigoni degli Oddi (1921). A collection that today, despite having been the subject of various studies, remains largely not studied and enhanced.

The “Benoit case”

In 1857, Luigi Benoit began the publication of his “*Illustrazione sistematica critica iconografica de’ testacei estramarini della Sicilia Ulteriore e delle isole circostanti*” (Benoit, 1857-1875) with two contributions, the first in 1857, ac-

red boxes. Finally those of the different islands in blue boxes] (Paulucci, 1878a, p. iv). Northern Italy (Aosta Valley, Piedmont, Lombardy, Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna, plus Istria) was identified by the green colour. Central Italy (Liguria including Nice, Tuscany with Tuscan Archipelago and the Papal State which included the current Marche, Umbria, and the northern part of Lazio) by the yellow colour. Southern Italy (southern part of Lazio, Abruzzi, Molise, Campania, Apulia, Basilicata, Calabria) by the purple colour. Finally, insular Italy (Sicily and circumsicilian islands, Sardinia, and some smaller Sardinian islands, Corsica and the Maltese Islands) by the blue colour (Paulucci, 1878a, 1880b) (Figs 6-8). For specimens collected outside Italy, the colour was yellow for Europe and purple for North Africa.

The small or medium-small sized specimens were mounted on a cardboard, black on the top and white on the bottom. They were attached on the upper part with a water-soluble glue (smart and far-sighted device to allow, in case it was necessary to examine them again, the easy detachment), on the lower face a summary of the label data was reported. The cardboard was then often placed in a glass vial and closed with a cork. Paulucci also used to keep the shipping label, the one with which the correspondent sent the material, gluing it to the bottom of the box. This precaution was very useful

in reconstructing a calligraphic archive of the major malacologists contemporary to the Marquise (Fig. 9). In her publications and in her correspondence, preserved at the Florence Museum and in the State Archive of Florence, how she expanded her collection was shown, not only through purchases and exchanges with the leading scholars of the time, but also by collecting herself in localities all over Italy and abroad (Barbagli & Borri, 2002) or by financing research campaigns sending her secretary, Cesare Caroti, to lesser known Italian territories (Paulucci, 1880b, 1882b). One of the unique methods of obtaining specimens to exchange with other scholars of the time was the breeding of specimens, a method that also allowed her to observe the behavior of the various species (Paulucci, 1880b, pp. 10-16). The accuracy of the identifications and the constant updating on editorial news was possible thanks to the social status of the Marquise, who invested many economic resources not only for the purchase of specimens, but also for the construction of a very large personal library full of books and journal issues. This library was donated to the Royal Museum of Natural History in Florence, together with her collection, in 1898.

At the time of the donation to the Florence Museum, her malacological collection consisted of a large number of specimens and species and, despite after more than a hundred years, the collection reached the present day almost in its original consistency (Cioppi et al., 2001;



Fig. 6. One of the drawers with *Cepaea nemoralis* (Linnaeus, 1758) from the Paulucci collection, preserved in MZUF. Paulucci, for scientific rigor, was not limited to a single sample of a species, but included, as far as possible, specimens of different origins in order to have the widest possible series to verify the specific variability.



Fig. 4. Label of a sample of *Cecilioides janii* (De Betta & Martinati, 1855); in addition to the detailed Paulucci collection data, where ecological information are also reported.



Fig. 5. A label from the Paulucci collection, as an example to describe the compilation scheme she followed. After the name of the species, she reported the bibliographic sources used for the identification, then the collection data and the number of specimens or test tubes and any other annotations. Paulucci superimposed labels when the material was re-studied. A-B. First label written on two sides. C-D. Second label, written in double-sided with the new identification. E. Sample in its overall view.

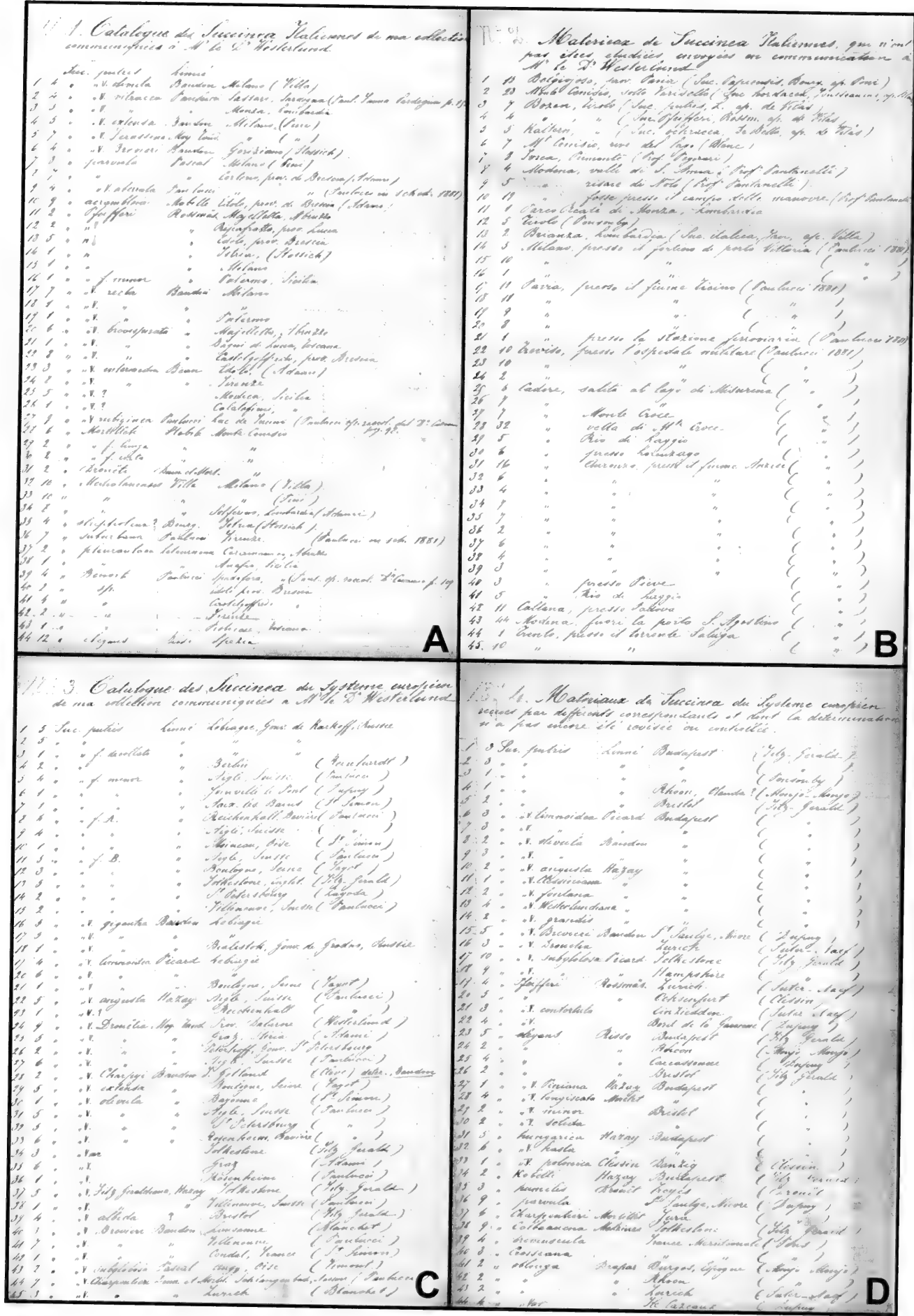


Fig. 3. Frontispiece of the 4 handwritten catalogues by Paulucci, of the species prepared to be sent to Westerlund from Novoli (Florence) on November 27, 1884. A. Catalogue 1, the first of the three pages with 128 samples listed. B. Catalogue 2, the first of the two pages with 91 samples listed. C. Catalogue 3, the first of the three pages with 140 samples listed. D. Catalogue 4, the first of the two pages with 53 samples listed. These catalogues, manuscripts in duplicate, testify the quantity of Succineidae (412 samples) that were already in the Paulucci collection in 1884 and her willingness to give her material to the most distinguished malacologists of her time.

p. 200), with a great personal and economic commitment, she managed to create this collection, which was subsequently brought to Paris: 534 species in 5436 boxes, all with labels (Paulucci, 1879b, p. 8). With the same purpose of showing a selection of Italian molluscs, this time exclusively from freshwater habitats, in 1880 the collection was shown at the International Fishing Exhibition “Fischerei-Ausstellung” in Berlin (Paulucci, 1880c, 1880d). The main feature of this female naturalist was the modernity of the method with which she pursued this project: the study of the materials was always accurate, the search for typical specimens described by other malacologists for comparison with the material in her possession was resolute, the exchange of opinions with other scholars of the time, also by sending her own material to the specialists of the various groups, was a consolidated practice (in 1884 she sent 190 samples of Succineidae to Carl A. Westerlund) (Fig. 3). Furthermore, the financing of field campaigns in areas that were little or not explored at the time, led her to become the scholar who expressed the best pages of the faunal-taxonomic literature written in those years on non-marine molluscs from Italy. Compared to other authors of her time, she demonstrated a competence and an ability to set and face the taxonomic issues that soon she became an international personality, known and appreciated throughout Europe. This fact was amply testified by both the words written by her colleagues in the reviews of her works (Kobelt, 1878; Crosse, 1879) and after more than 100 years, by her publications which are still consulted and cited by the major modern malacologists. The contribution that this scholar provided to science can also be summarized by the entities she discovered and described: two genera (*Thermhydrobia* Paulucci, 1878, and *Pseudamnicola* Paulucci, 1878, this last still a valid genus) and more than 160 species or varieties, many of which are still valid.

The Mollusca collection

With certainty, thanks to the handwritten data on the labels accompanying her samples, the first specimens she collected date back to 1860 when, in her early twenties, she began to collect fossil and recent molluscs. By studying the collection localities, the places she visited were reconstructed, such as the trip to Russia in 1860, where she traveled with her husband Alessandro Anafesto Paulucci (1828-1887) to visit her brother-in-law Alessandro Nicola Paulucci (1839-1902), general of the Tsar, and where she collected numerous fossil molluscs (Cioppi et al., 2001; Ilari, 2014). In 1874, her collection was significantly increased with constant personal purchases and collections. Her importance was evidenced by an account by Armand Thielens (Thielens, 1874) who, on May 16, 1874, visited Marianna Paulucci, at her house in Novoli near Florence (also known as Villa Torre degli Agli, from the first owners). Thielens was impressed by the value and variety of the collection: in addition to the fossils, the marine malacofauna of the Mediterranean (435 species) was also well repre-

sented and already there were several drawers with terrestrial molluscs. Thielens remarked that, although many groups were not yet catalogued, the number of species was around 9,000. Many of the samples in the collection were already studied and others were later examined by many illustrious malacologists of the time (Fischer, 1864; Crosse, 1865, 1869, 1870; Aradas & Benoit, 1871; D'Ancona 1871, 1872; Sowerby, 1877; Tapparoni Canefri, 1877, 1879, 1882; Monterosato, 1884), establishing, in some cases, new species still preserved in the Museum of Natural History in Florence.

For the Marquise Paulucci, the arrangement of a sample meant giving it a sheet, which contained as much information as possible. The sample was accompanied by one or more labels. This happened because in only one label, very often double-sided manuscript, it was not possible to report all the useful data, or otherwise, with a subsequent study of the material, the previous information was updated and corrected, and the most recent remained above all others. Not all labels were equally detailed; the more complete ones reported, first, the identification of the species, by genus, species and often variety and, subsequently, author and year. A bibliographic indication of the text on which the determination was given as well, with reference to the page and figure, when present. Then in the label the place where the specimens were collected was reported, the number of vials and specimens, the date of collection and the name of the collector. Possible annotations concerned both nomenclatural, taxonomic, but also ecological topics (Fig. 4). In some cases, the date on which the material was taken back for study was also indicated. The paper, on which the data were rigorously handwritten by Paulucci, was also typical, and therefore easily recognizable: a fine lined paper, of heavy weight that was cut to size, with a usual and meticulous precision, for a container in which the label was placed precisely together with the sample (Fig. 5). These containers consisted of cardboard handmade boxes, in different sizes and shapes depending on the number and size of the specimens, from small to large, from square to rectangular. However, the most important feature of the cardbox, for continental molluscs, was the colour of the paper that covered it. Paulucci divided Italy geographically (including the Istrian and Nice area, Corsica and the Maltese Archipelago), into four macro-regions: “*Ces quatre régions sont représentées dans ma collection par des boîtes de quatre différentes couleurs, cela dans le but de montrer du premier abord l'ensemble de la distribution géographique, soit de l'espèce, soit de la variété. Les représentants de la région septentrionale sont contenus dans des boîtes vertes. Ceux de la centrale dans des boîtes jaunes. Ceux de la méridionale dans des boîtes rouges. Enfin ceux des différentes îles dans des boîtes bleues*” [These four regions are represented in my collection by boxes of four different colors, this in order to show first the entire geographic distribution of the species or of the variety. Representatives of the northern regions are contained in green boxes. Those of center one are in yellow boxes. Those of the southern one in red [fuchsia] boxes. Those of the southern one in

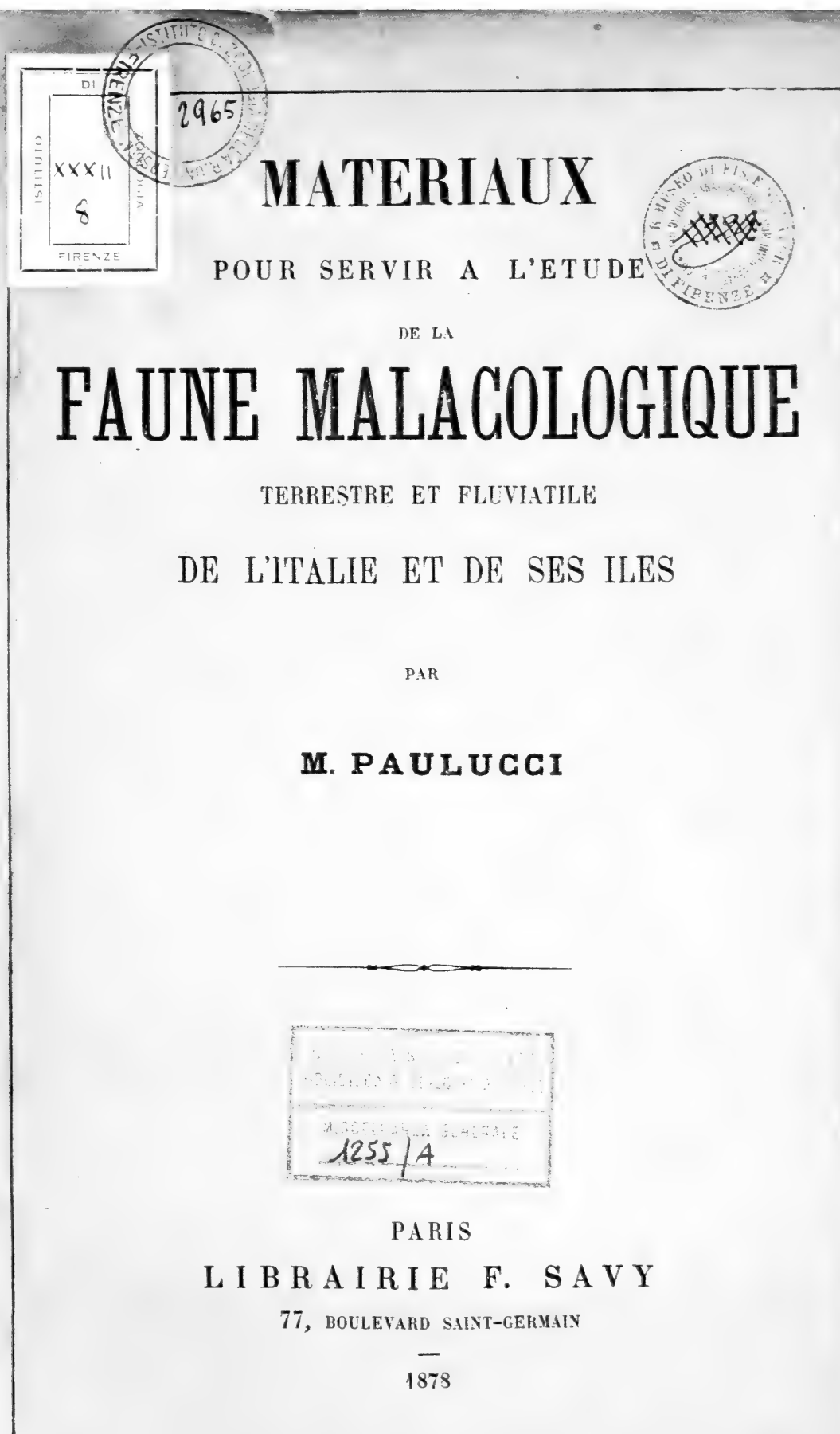


Fig. 2. Frontispiece of the *Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles*. Personal copy of the Marquise Paulucci currently deposited in the Library of the Polo Scientifico di Sesto Fiorentino of the University of Florence.

(Cianfanelli & Manganelli, 2002) and the progressive order within each manuscript.

In this first contribution, 41 taxa described in two papers (Paulucci, 1866, 1878a) are treated, the second part will concern about thirty taxa published in her following three manuscripts (Paulucci, 1879a, 1879c, 1880bc), the third part will treat about forty taxa in her successive five ones (Paulucci, 1880c, 1880e, 1881a, 1881b, 1882a), the fourth will conclude with the analysis of the remaining taxa, in her two final publications (Paulucci, 1882b, 1886). Taxa are usually present in the Paulucci collection with one or more samples constituting the typel series, and each sample consists of one to many specimens.

For each taxon, a data sheet is provided with the following information: taxon name, original publication, original description, type locality, type material, status, remarks.

Taxon name: it is transcribed as it is in the original work (including errors, specific names in capital letters if dedicated to individuals, as customary at the time, forms and varieties, presently no longer accepted in taxonomy).

Original publication: the bibliographic reference with the year of publication, the pages and any notes where the taxon is described and when the references of the tables and figures are given.

Original description: the diagnosis is quoted in the original language (Latin and/or French and/or Italian). Sometimes the description is proposed again in subsequent works; in these cases, if considered useful, it is reported in the Remarks section. For the taxa established on the images of other authors, the description is given by the figure itself.

Type locality: the collection locality indicated by the author in the work is reported, adding data from the labels in the box of the specimens, when specific type localities are indicated or other ones are given.

Type material: the type category (lectotype, paralectotype, syntype or topotype) and the total number of specimens of the typical series are given. For each sample, there are also reported: the collection locality based on the original tag, the MZUF collection number preceded by the suffix GC or BC, which respectively distinguishes gastropod and bivalve molluscs, and the number of specimens. It is also highlighted when, following recent revision works, the syntypes are elevated to lectotypes or paralectotypes. The number of specimens sometimes does not coincide with the manuscript number in the original label, as in the years 1960-1980 illustrious scholars visited the museum collection and some of them were allowed to take specimens, even typical ones, for their reference collections.

Current status: for the name of the taxon, the nomenclature proposed in Bank & Neubert (2017) and MolluscaBase (2020) is followed or, if available, the one proposed in more recent reviews of the individual groups, or derived from unpublished personal data (in this case the details are reported in the Remarks section).

Remarks: updates are reported regarding revisions of

the taxa, with the relative bibliographic references or other data deemed of interest. The aim is not to carry out a systematic review but to highlight problems related to the validity or synonymies of the treated taxa.

The data sheet is associated with the images of the lectotype, when present. In the absence of this, the syntype is photographed, corresponding to that drawn in the tables of the work in which the species is described (when possible to identify it) or in any case one of the syntypes marked by Paulucci with the ink on the shell (normally on the inner edge of the peristome). In the absence of recognizable syntypes, a shell is chosen from the samples of the typical series that is more representative or with the characters that are closest to those indicated in the author's description. The shells are photographed in the most significant views (apertural, apical, dorsal, umbilical, right lateral or left lateral) choosing the most suitable ones for each taxon. The handwritten labels (sometimes more than one, starting with the original one by the author) complete the composition of the table. The images are taken with a digital camera, for specimens over 1.5 cm in size, if smaller, the images are done by means of a microscope with image-stacking software for merging multiple focal planes. The labels are reproduced with a high-resolution scanner. The figures in the tables are assembled using a graphic software.

Abbreviations

IGF = Museo di Storia Naturale, Sezione di Geologia e Paleontologia, Università di Firenze, Italy;
MZUF = Museo di Storia Naturale, Sezione di Zoologia "La Specola", Università di Firenze, Italy.

Discussion

The central and most important aspect of the work of the Marquise Paulucci was the project of drawing up a first checklist on the Italian malacofauna, a project that was realized with the publication of the *Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviale de l'Italie et de ses îles* (Paulucci, 1878a) (Fig. 2). At that time, the political unity of Italy was achieved and Paulucci felt the duty to endow her country with a catalogue of the national malacofauna, as already done by scientists in other major European states "... *Aucun travail d'ensemble n'a été publié jusqu'ici sur la faune Malacologique terrestre et fluviale de l'Italie* ..." [...No exhaustive work has been published so far on the terrestrial and fluvial malacological fauna of Italy...] (Paulucci, 1878a, p. I).

The initial goal was to bring a collection of the Italian terrestrial molluscs as complete as possible to Paris, where the *Exposition Universelle* was later held in 1878 (Jousseaume, 1878; Paulucci, 1878a, 1879b, 1880a; Manganelli et al., 2002). Since 1876, the initial collecting phase for the current exotic and fossil molluscs was set aside, and the Marquise dedicated herself to this scientific enterprise and in just 18 months (Paulucci, 1880a,



Fig. 1. Marianna Panciatichi Ximenes d'Aragona Paulucci with her daughter Maria Paulucci, countess of San Giorgio, 1860 (Photo from the archive of Fausto Barbagli).

Annotated catalogue of the types of Mollusc taxa described by the Marquise Marianna Panciatichi Ximenes d'Aragona Paulucci preserved at the Museum of Natural History of the University of Florence (Part one)

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Abstract

The Marquise Marianna Panciatichi Ximenes d'Aragona Paulucci (Florence, February 3, 1835 - Reggello, December 7, 1919), a naturalist of the second half of the nineteenth century, is principally known for her scientific publications, in particular for those on malacology. For the centennial of her death, a project has started for the creation of the type catalogue of the molluscs she described. The catalogue will be divided into four parts; in this contribution, the 41 taxa included in her first two works (Paulucci, 1866, 1878a) are given, in which new species and genera were described. Among these, nine names are included, up to now assigned to Benoit, but which, according to the ICZN, must be attributed to Paulucci.

Key words

Marianna Paulucci, MZUF, types, Italy.

Riassunto

La Marchesa Marianna Panciatichi Ximenes d'Aragona Paulucci (Firenze, 3 febbraio 1835 – Reggello, 7 dicembre 1919), naturalista della seconda metà dell'Ottocento, è nota per le sue pubblicazioni, in particolare per quelle relative alla malacologia. Nell'anniversario del centenario della morte è iniziato un progetto per la realizzazione del catalogo dei molluschi da lei descritti. Il catalogo sarà diviso in quattro parti; in questo contributo viene presentata la prima parte che comprende i 41 taxa inclusi nei suoi primi due lavori (Paulucci, 1866, 1878a) nei quali furono descritti nuovi taxa. Tra questi sono compresi 9 nomi, fino ad oggi assegnati a Benoit, ma che, in base alle norme dell'ICZN, devono essere attribuiti a Paulucci.

Parole chiave

Marianna Paulucci, MZUF, tipi, Italia.

Introduction

The Marquise Marianna Panciatichi Ximenes d'Aragona Paulucci (born in Florence, on February 3, 1835; deceased in Reggello, Florence province, on December 7, 1919; **Fig. 1**) was, in the second half of the XIX century, one of the few and most interesting feminine characters that in Europe studied natural sciences (Manganelli & Cianfanelli, 2002; Manganelli et al., 2002; Focaccia, 2016; Barbagli, 2019). Her interests ranged in the various disciplines of the natural sciences, from paleontology, botany, ornithology, to malacology, with the creation of important collections still preserved in several Tuscan museums (Barbagli & Lotti, 2002; Barbagli & Nistri, 2002; Barsanti, 2002; Cianfanelli & Manganelli, 2002; Manganelli & Cianfanelli, 2002; Spadini, 2002; Manganelli et al., 2002, 2009). Undoubtedly the greatest scientific contribution was that in the malacology field, as evidenced by the number of contributions she wrote on this subject, 32 out of her 40 papers (Cianfanelli & Manganelli, 2002), in which she expressed her considerable skills that allowed her to compile the first malacological list of Italian terrestrial and freshwater species, with an updated taxonomic-nomenclature structure. Of equal importance were also the studies that concerned the revision of some groups of molluscs ("*Helix*", *Sphaerium*,

Campylaea; Paulucci, 1878b, 1880e, 1881a); the revision of some regional malacofaunas: Abruzzi (Paulucci, 1881b), Calabria (Paulucci, 1880b), Sardinia (Paulucci, 1882b), Monte Argentario in Tuscany (Paulucci, 1886) and the description of about 170 taxa of the species group and two new genera. In Cianfanelli & Manganelli (2002) a preliminary list of taxa, without iconography, was given, to which other names previously attributed to other authors have presently been added. The expertise of the Marquise Paulucci was recognized by many of the greatest malacologists of the time, who often dedicated new species to her; in fact, there are 40 eponyms (Manganelli et al., 2009), plus one recently established by Nordsieck (2011a). Despite this, she was strongly contested, especially by the exponents of the French Nouvelle École, at a time when the monopoly, in all fields of science, was masculine and the abilities of a brilliant female scientist could not be bore (Manganelli & Cianfanelli, 2002; Manganelli et al., 2002).

Materials and Methods

Due to the large number of treated taxa, the catalog is divided into four parts. It examines the types following the chronological order of publication of her works

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Italicize the names of genera, subgenera, species and subspecies but not those of higher taxa. When first mentioned, species and genus names should include authority and year of publication. Abbreviation of genus names is allowed but taking care to avoid confusion among different genera with the same initial.

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Example of systematic hierarchy and synonymy:

Family Cardiidae Lamarck, 1809

Subfamily Cardinae Lamarck, 1809

Genus *Acanthocardia* Gray, 1853

(type species *Cardium aculeatum* Linné, 1758)

Cardium indicum Lamarck, 1819

(Fig. 1. A-D, Fig. 2. C)

Cardium hians Brocchi, 1814: p. 508, pl. 13, fig. 6 (non Spengler, 1799).

Cardium indicum Lamarck, 1819: p. 4.

Cardium (Cardium) indicum Lamarck – Fischer-Piette, 1977: p. 112, pl. 10, fig. 4 (type).

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... reported by Richardson & Smith (1965)

... as known in literature (Ross et al., 1993; Rosenberg, 1995, 1997; Michelini & Andriani, 2000)

... the original illustration (Torwald, 1879: p. 56, pl. 2, fig. 5).

Example of references:

SALAS C., 1996. Marine Bivalves from off the Southern Iberian Peninsula collected by the Balgim and Fauna 1 expeditions. *Haliotis*, 25: 33-100.

GRILL B. & ZUSCHIN M., 2001. Modern shallow- to deep-water bivalve death assemblages in the Red Sea - ecology and biogeography. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 168: 75-96.

BOSS K.J., 1982. Mollusca, in Parker S.P. (ed.), *Synopsis and Classification of Living Organisms*. Vol. 1. McGraw-Hill, New York: 945-1166.

CARTER J.G., CAMPBELL D.C. & CAMPBELL M.R. 2000. Cladistic perspectives on early bivalve evolution, in Harper E.M., Taylor J.D. & Crame J.A. (eds), *The Evolutionary Biology of the Bivalvia*. Geological Society, London, *Special Publications*, 177: 47-95.

VOKES H.E., 1980. *Genera of the Bivalvia: a systematic and bibliographic catalogue (revised and update)*. Paleontological Research Institution, Ithaca, Edwards Brothers Inc., 307 pp.

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